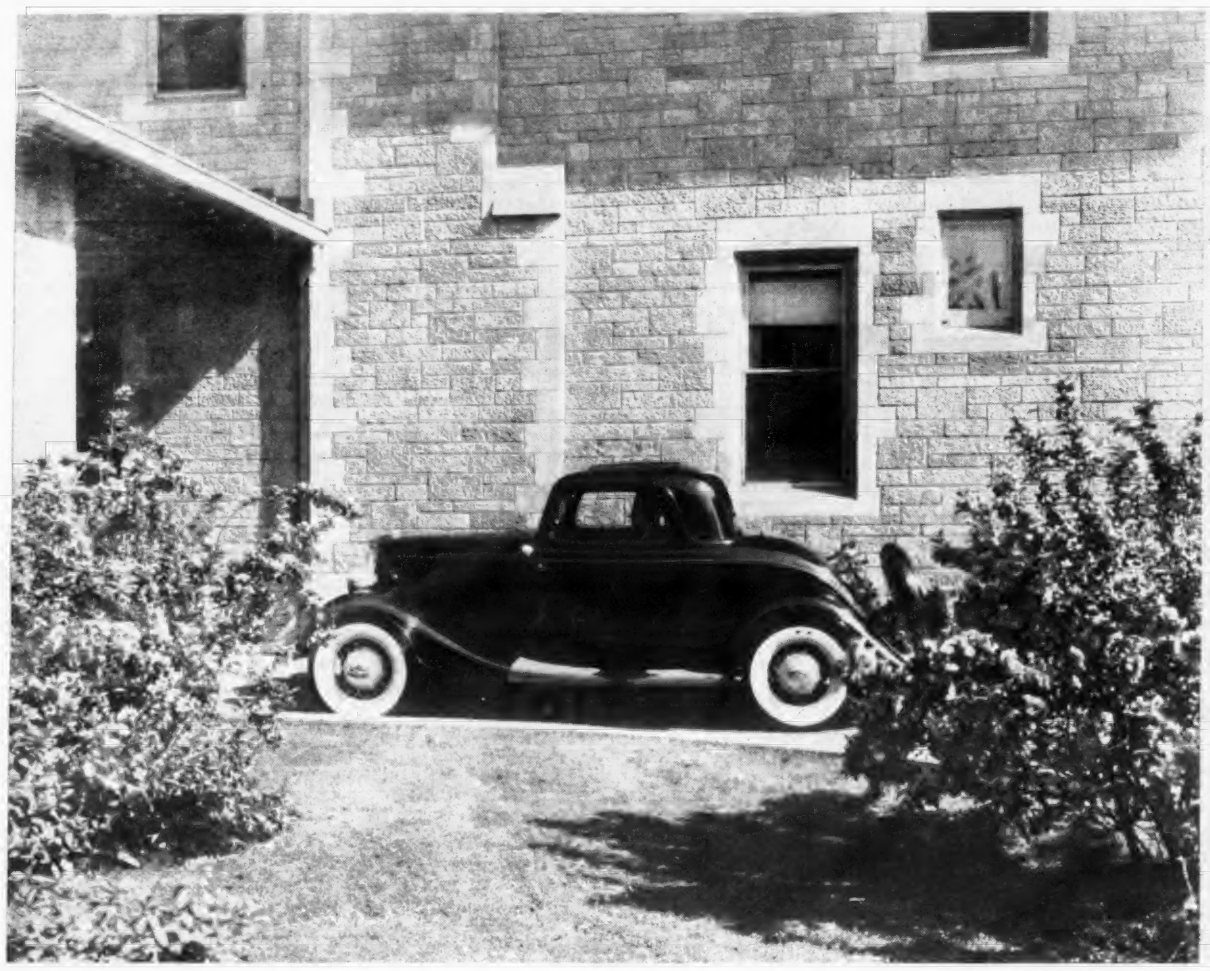
Two Views of the New Home of Electric Refrigeration News



(Left-hand picture) What strikes your eye first in the above picture? (1) Engineering Editor Jack Schaefer, (2) his new Ford V-8, (3) the two shrubs of blooming Weigela, or (4) the nice job of cut stonework in the new home of ELECTRIC REFRIGERATION NEWS at 5229 Cass Ave., Detroit?

(Right-hand picture) After becoming accustomed to having all of our offices and equipment on one floor in the Maccabees building, the three stories and basement of our new home made some problems of arrangement. One problem was solved by centralizing files in the basement and installing a dumb waiter to handle material between the four floor levels. The young lady in the picture is Miss Nora Wright, latest addition to the NEWS staff, who is "starting at the bottom." The new air-conditioning equipment is located in the room at the right, hence the air ducts running in all directions.

Dealer Activity and Commercial Sales Improve in New York City

(Concluded from Page 1, Column 4)

with time and one-third for overtime and time and one-half for holiday work. Remainder of the provisions concerned chiefly matters of arbitration, insurance, and rights of the union in protecting its members.

N. Y. Dealer Sales Up, Apartment Sales Down

It's pretty hard to generalize, accurately, on highlights in the refrigeration business in New York City this season, or any season. That town has seven million people crammed into it, and getting real facts on sales trends is not easy.

Some of the companies selling refrigeration there are so large you can go to one of them, spend three hours in a half-dozen of its offices, and still not feel safe in saying whether its business has been good or bad. One man may be able to tell you about household sales, but he hasn't heard whether his company has sold one or 5,000 commercial jobs.

But after a week and a half of question-asking, we believe we're safe in making the following brief observations on business there so far this year:

Dealer sales have boomed, but apartment house installations have not been up to last season's mark—reasons being the climbing saturation point in this market, the lack of new building, and the unsettled state of many mortgage companies controlling apartment houses.

Department stores have done a big sales job on refrigerators, many of them featuring meter plans. Small boxes have moved in large volume, and principal buyers have been those in the $2,000-a-year class.

Commercial sales have been more satisfactory than last year. Food stores and meat markets have comprised the best market. Unit volume in beer-cooling equipment has dropped under '33, but most of this season's sales have been for coolers out of the cheap class.

Several score of good air-conditioning installations have been made since the start of the year, but there is some question as to how much profit they have netted companies which made them. Price-cutting seems to be prevalent, with competition showing cut-throat characteristics in some instances.

Glorifying the Oyster

Several years ago Miss S. B. Reed, proprietress of the Crisfield Cafeteria at 209 Pearl St. in Manhattan, got an idea about a fancy way of serving raw oysters—in ice shells instead of real half shells.

She got a tinner to make several trays of shell-shaped moulds to fit in her ice maker. In the center of each mould is a little tube which leaves a hole in the ice shell so the water will drain off as the ice melts under the oyster. On the basis of that drainage hole, she got a patent, No. 1,753,940.

Miss Reed's oysters-on-the-ice-shell business got to be good. People came back for more. Now she has decided maybe other restaurants would like to do the same thing, so has H. L. Forman—who designed the Chilspray fish case now being made by Seeger—working on redesign of the ice shell moulds to fit trays of Seeger ice-maker cabinets.

The moulds' queer shape makes them hard to arrange in a tray, so Mr. Forman hasn't got much further than the tear-up-and-put-back stage yet. When the design is finished, work will be started on marketing plans.

Dude Ranches and Oil Burners

Still subscribing to the NEWS even though they are at least temporarily out of the refrigeration business are Winston Paul, former head of the Domestic Electric Co., one-time New York Frigidaire distributor, and Con Eakin, manager of Frigidaire's New York branch until last February. We called up to see what they are doing.

Mr. Paul has an office at 580 Fifth Ave., but he was not there, and the girl who answered wasn't very informative. "Mr. Paul is out of town," she said. "When will he be back?" "We expect him in October." Later we learned that he is in Idaho, running a dude ranch he owns.

Con Eakin has gone into the oil burner business as head of the Petroleum Utilities Corp., Torridheet wholesale outlet at 14 West Fortieth St. Right now, the company handles nothing but oil burners, but may take on allied lines soon, he told us.

Collins Explains N.Y. Small Model Sales

This has been a good season for Frigidaire in New York, according to J. T. Collins, manager of the factory branch there. "April was big. May was bigger, even though we had trouble getting all the small boxes we needed. And although the figures aren't all in yet, it looks as though June sales will total as high as May," he said.

Mr. Collins estimates that three-fourths of the electric refrigerators sold in New York City are models of 5 cu. ft. or less. There's a natural reason for that, he thinks. In the first place, kitchens are small, and secondly, folks there don't need big refrigerators. Food stores are plentiful; there's one almost anywhere you look. People don't have to buy a week's grocery supply at a time.

Frigidaire's service department is probably the largest in New York City. Headquartered on Girard Ave. in the Bronx, it employs 400 people and is in charge of M. F. McCarthy. It is responsible for installing and servicing all Frigidaire machines sold in metropolitan New York City. Officials of the branch set the number of Frigidaire household and commercial units in use in the city at 250,000.

G-E Distributor Has Good Season

Had several pleasant visits at Rex Cole, Inc., General Electric distributor in New York. Robert Lanigan, assistant sales promotion manager, guided us around from office to office, and in between interviews told us how proud the organization is of its work during the All Star Discovery Drive.

Two Cole members did an especially good job. Miss Albina Zavis, wholesale saleswoman, made 301 per cent of quota and led all wholesale salesmen in the company. Distributorship officials were so pleased that they gave her $100 in cash—an unscheduled prize—at the close of the campaign.

The other super performer is Henry Robiczek, commercial salesman. He told 896 per cent of quota. We tried to get in touch with him to find out how he does it, but he was out in the field somewhere and could not be reached.

Commercial Manager Jenks was on a vacation—his first in seven years—so we talked about commercial business with J. Frank Vernon, Jr., assistant commercial man. Some of his remarks:

"Our commercial sales have been better than last year, but the business has been spasmodic all season. One week the orders come in thick and fast. The next week we can't find anyone interested in commercial.

"Restaurants have been the best buyers of commercial equipment, but we have made several good sales to chain food stores. Independent merchants are beginning to realize that they have to have good refrigeration and display equipment to stay in business.

"A number of our sales to restaurants this year have been of the two-in-one kind. We've been quite successful in selling a refrigeration unit and a Russ beer cooler at the same time.

"There are still hundreds of small food stores and restaurants struggling to keep their heads above water. With them, the depression isn't over. If they *do* weather the storm, I believe they will be good prospects for refrigeration."

Cole's retail sales got off to a slow start this year, according to W. F. Bishop, assistant retail manager, but in March began to show a marked pickup which persisted until sales in May made that month the best in the company's history.

"Our average unit sale price has gone up 25 per cent over last year," he said. Fives and sevens have been the best sellers.

"One practically untouched market for refrigerators has opened up this year—we have made a large volume of sales to owners of two- and four-family homes. This is just a step down from the apartment house market, and in New York it has tremendous potentialities.

"Right now, we have about 3,000 people in the city paying for G-E's with Banclocks. In our advertising this spring, we have spotlighted the 23-cents-a-day theme, and it has been very effective.

"On most of our Banclock sales, we try to hold the payment period below 30 months. It runs only up to 24 months on flat-top models, but goes up to 36 months on some of the larger Monitor Top boxes.

"Department stores have done a big job in refrigeration this season, many of them featuring the meter plan."

M. B. Lum, at one time with the McGraw-Hill Publishing Co., has joined the G-E distributor as merchandising manager, and at present is giving Cole salesmen instruction on selling dishwashers. "The salesmen are a little slow to take hold, but we're making some progress," he told us.

Just about the strongest sales point a dishwasher salesman can make is the drudgery of washing dishes, thinks Mr. Lum, so he is teaching his men to play up the fact that during the life of a dishwasher, a woman has to do nine piles of dishes as high as the Empire State building and 40 miles of silverware, and that she spends more than one solid month each year over the dishpan.

Testing Laboratories Study Air Conditioning

Electrical Testing Laboratories haven't done much work with refrigerators lately, E. H. Salter told us, but a good deal of attention is being given to air conditioning in the company's "test house" which was built in the laboratories as a proving ground for various types of conditioners.

The house has two 14x14 rooms, and an attic and cellar. It is built within a cork enclosure so that any desired weather condition may be maintained during a test. Unit-type conditioners are being experimented with now, and other types of equipment will be tested later, Mr. Salter said.

Latham Launches Advertising Drive

R. E. Hunting, refrigeration manager of E. B. Latham & Co., Leonard distributor, has no complaints to make about business this season. Apartment business has been better than in any previous year, and sales to dealers have held up well except for a mild slump around the second week in June. Rumors of more price changes were responsible for the drop, the manager thinks.

On June 5, the distributor opened a two-months' advertising campaign which spotlights Leonard features. Besides newspaper space, between 500 and 600 billboards are being used, as Mr. Hunting has found them to be quite productive of prospects.

There was no service strike at this concern, either. It employs 16 men, 12 of whom work out in the city, and four in the shop. The 12 men work chiefly on apartment house installations, as most of Latham's dealers do their own servicing.

Minimum salary paid these servicemen is $35 a week. The distributor furnishes each of them with a car, and gives them an expense account for late lunches and other expenses arising during overtime work periods and the like.

In the spring-and-summer season, the company holds a service school at headquarters every month or six weeks for dealers and their servicemen. To these same meetings are invited apartment caretakers, who learn how to make minor repairs on refrigerators. Mr. Hunting said that this has eliminated a large percentage of the company's "nuisance calls."

Men in service departments of the distributor's other divisions (washers, radios, etc.) have been trained in refrigeration service so they will be able to do some pinch-hit work on Leonards in case extra help is ever needed.

We talked for just a minute with L. E. Latham, vice president of the distributorship. Most of that minute he spent saying nice things about ELECTRIC REFRIGERATION NEWS—how "newsy and impartial" it is.

O'Harra Dislikes New Vest Pocket Model

Glenn O'Harra, manager of Norge Corp.'s eastern operation, can't hand these new vest-pocket refrigerators a thing. He believes they will drag refrigeration prices down again, and will make for price-cutting.

"A prospect will tell a dealer, 'I won't buy that little box when I can get a pretty good 5-ft. refrigerator somewhere for just a little more money.' So the dealer will cut his price on a 5-cu. ft. model and take a tiny profit just to keep the prospect from going elsewhere," Mr. O'Harra said.

The Norge branch has just moved its service, accounting, and dealer headquarters to 3341 Thirty-Second Place in Long Island City, but still has its general office and apartment sales department at 331 Madison Ave. in Manhattan.

Mr. O'Harra said the service strike didn't touch his company. When rumors of a strike began to drift around, the branch's 18 servicemen—who take care of all Norges in metropolitan New York—were given an increase in pay. That, and the fact that the company has occasional parties for its service department, seemed to prevent any possible trouble.

Norge apartment house sales in New York are between 35 and 50 per cent ahead of last year, we were told.

Tapp Predicts Sales Will Hit 1,200,000 Mark

Over at headquarters of the American Oil Burner Association, where we went to get information on New York City's new oil burner installation rules, we met Executive Secretary Harry F. Tapp, who was interested in looking over the 1934 REFRIGERATION DIRECTORY. For several minutes he studied the tabulation of refrigerator sales by years, then guessed that on the basis of past performance, the industry will sell 1,200,000 units during 1934.

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THE NEWSPAPER OF THE INDUSTRY

ELECTRIC REFRIGERATION NEWS

WRITTEN TO BE READ ON ARRIVAL

Registered U. S. Patent Office

ESTABLISHED 1926. MEMBER AUDIT BUREAU OF CIRCULATIONS. MEMBER ASSOCIATED BUSINESS PAPERS. MEMBER PERIODICAL PUBLISHERS INSTITUTE.

ISSUED EVERY WEEK
VOL. 12, NO. 12, SERIAL NO. 278

Copyright, 1934, by Business News Pub. Co.

DETROIT, MICHIGAN, JULY 18, 1934

Entered as second-class matter Aug. 1, 1927

THREE DOLLARS PER YEAR
TEN CENTS PER COPY

JUL 20 1934 LIBRARY

Chrysler Motors Introduces Unit Air Conditioner

Walter P. Chrysler Jr. to Head Company Making Year 'Round Systems

NEW YORK CITY, July 16—Public announcement was made today by Walter P. Chrysler, Jr., of the formation of the Temperature Corp. to market a new air conditioner for commercial and household applications. A special preview of the equipment was held in the new Air Conditioning Salon on the ground floor of the Chrysler building.

The conditioners are being manufactured by the Amplex Mfg. Co., a division of Chrysler Motors. The son of the famed automobile manufacturer is president of Temperature Corp., and Byron C. Foy, president of the De Soto Motor Corp., is vice president.

The "Airtemp" conditioner which Temperature Corp. will manufacture is about the size of the average steam radiator.

Equipment consists of twin centrifugal fans, connected to a small electric motor. The fans force air through water coils into a chamber where the air passes through two sprays of water, washing the air under pressure.

A common cooling and heating unit provides refrigeration and dehumidification in the summer and heating and humidification in the winter.

Changes in Commercial Cabinet Code Approved

WASHINGTON, D. C. — Amendments to the code of fair competition for the commercial refrigerator industry were approved last week by National Recovery Administrator Hugh S. Johnson, and will become effective July 24.

Most important of the changes in the fair practice provisions are the following:

A down payment in cash amounting to 20 per cent of the net sales price to be paid *on or prior* to delivery to the purchaser.

Balance due on any contract to be paid in not more than 24 months from date of *shipment*.

Any contract for the sale or transfer of any product of the industry which does not provide for payment in full within 90 days after the date

(Concluded on Page 9, Column 1)

Has New Duties

CHARLES T. LAWSON

* * *

Lawson Is Promoted By Frigidaire Corp.

DAYTON—Promotion of Charles T. Lawson, department store division manager for Frigidaire Corp., to manager of a newly formed household division with supervision over all household refrigerator sales in the United States, was announced by H. W. Newell, vice president.

Mr. Lawson fills a post that has been vacant since the promotion a year and a half ago of Frank R. Pierce to the sales managership of the corporation, Mr. Newell stated.

He joined the national headquarters organization of Frigidaire in May, 1932, as founder and manager of a new department store division.

Counter Freezer Code Authority Named

CHICAGO—Officers of the Code Authority were elected and a budget to cover the administration expenses of the code of fair competition was adopted at a recent meeting of the members of the National Association of Counter Freezer Manufacturers.

D. W. Donohue, Mills Novelty Co., was elected chairman, and J. J. Tyndal of Taylor Freezer Corp., vice chairman of the Code Authority.

Members of the industry will be assessed one-fourth of 1 per cent of the new dollar sales beginning with May, 1934, sales to provide funds for the administration expenses.

'Air Conditioning May Remake World Economic Map'—Gregg

CHICAGO—The development of air conditioning may remake the economic map of the world, Willis R. Gregg, chief, United States Weather Bureau, Washington, D. C., said last Wednesday at the dedication of the Frigidaire air-conditioned house at A Century of Progress.

"Climate undoubtedly has determined where the cities and centers of our highest culture and civilization have been located," the United States weather man said, "so it is not beyond the realm of comprehension to wonder if the development of air conditioning may not cause a redesigning of the economic map of the world.

"The energetic, hard-hitting tactics of the northerner who works hard and plays hard because the climate in which he lives inspires and invigorates him to greater activity, has had much to do with the development in our northern states of giant industries and other activities. These in turn have brought about a centralization of buying power.

"Is it expecting too much to predict that air conditioning of the working quarters, homes, and other buildings occupied by residents in the hotter and more humid areas of the earth may cause new activity in those parts that will open up to use natural resources beyond our imagination?

"Or that the developments made possible by helping men to work in strength-sapping climes will take up the employment slack and open new channels of buying power? I don't think so.

"Ever since the dawn of history, man has sought to control the weather. He has succeeded so far as the indoors is concerned and now it is possible for one to have his indoor weather as, when, and how he wants it."

Mr. Gregg's speech was broadcast over the NBC "blue" network, between 50 and 57 stations carrying the program.

The Chicago weather bureau set up a barograph, an anemometer, and a sling psychrometer in the house, with which Mr. Gregg tested the air in the house and forecast "Weather here clear and comfortable."

Representing Frigidaire at all the ceremonies and the official luncheon given by Rufus Dawes following were Earl D. Doty, advertising manager; L. F. Skutt, regional manager, Great Lakes region; Gardner M. Cobb, resident manager, General Motors exhibit; J. W. Irwin, director of publicity; and Volney B. Fowler, director of public relations, General Motors, Detroit.

Following is the text of Mr. Gregg's address, made following his official reception at the Fair by Rufus C. Dawes, president, and the troops stationed at the exposition:

"Weather is the subject of more arguments, I imagine, than any other single factor in every day life, for weather and its parent, climate, probably have as great an effect on humanity as any other element of living.

"Therefore, as the man who is put on the roasting grid when the weather

(Concluded on Page 2, Column 1)

Georgia Dealers Say Government Plan Is Demoralizing Their Refrigeration Business in Tennessee Valley

WESTERN UNION TELEGRAM

QA3 288 NL 1/14 OWUX Atlanta Ga 15 1934 July 16 AM 4 19

Editor, Electric Refrigeration News, Detroit

Have read with considerable interest and approval your splendid editorial in July 11 issue which reveals a close study and thorough understanding of the TVA situation. As a result of this TVA situation the refrigeration industry in the Tennessee Valley is demoralized.

No merchandise is being sold here at list prices, dealers getting what they can. Seemingly the utilities are specializing in cut-price merchandise and dealers are forced to meet this competition. There has never been any objection on the part of dealers and distributors to TVA chest-type refrigerators but they do strongly protest the act on the part of some manufacturers of taking regular models out of the line and creating, as they term it, an interim model almost a duplicate of the model selling for around $50 more and merchandising it through the utilities who, as you say, "aren't terribly concerned whether they can retail at a profit or not."

While statistics may show that a great many refrigerators are being sold in this area, dealers and distributors are actually losing money because of this demoralized condition. Distributors report inactivity and complete cessation of large and heretofore active accounts. They would like to get enthusiastically behind the TVA movement and very strongly solicit the cooperation of the manufacturers and the TVA directors to work out a plan whereby they might place the full force of their distributing facilities and their merchandising ability behind the TVA plan.

This telegram is sent by authority of more than 125 dealers and distributors in the state of Georgia. Thank you for your editorial and looking for further comments along the same lines.

E. F. YANCEY and HARRY LEVER, Chairmen,
Representing the Independent Refrigeration Dealers of Georgia.

Dealers Protest Georgia Power Co.'s Sale of TVA 'Interim' Refrigerators

The following letter has been received from the Georgia Committee on TVA Matters.

Copy
Atlanta, Ga.
July 13, 1934.

Mr. Chas. A. Collier,
Vice President in Charge of Sales,
Georgia Power Co.,
Atlanta, Ga.
Dear Mr. Collier:

This letter is written you with the signed permission of all dealers and distributors whose typewritten signatures are affixed hereto.

You are well aware of the fact that the sale of what you have termed ad interim TVA refrigerators is extremely detrimental to the business of electrical refrigerator dealers and distributors who must depend for their living in the profits they make from the sale of refrigerators, as they are not in position, as is your company, to reap a profit from the current consumed by these refrigerators. While we were greatly alarmed about this situation, our fears were allayed somewhat by the meeting called by your company, at the Capital City Club, Tuesday evening, May 29, 1934, at which you stated in substance that all of the ad interim boxes had been sold; that there would not be any more; that the few hundred which had been sold was water over the dam; and that the next boxes would be of the ice chest type and would not compete seriously with the standard type of refrigerator.

Acting on your assurance that there would be no more of the ad interim boxes, some of the distributors were able to reinstate orders for a number of refrigerators which had been cancelled because of your previous ad, and these distributors now find themselves in the position of being called upon to take back many of the refrigerators of approximately the same capacity as the ad interim boxes you are now advertising and selling.

We feel very strongly that your recent advertisements are a breach of faith and in direct conflict with your statements made at the meeting May 29, which we accepted in good faith. We feel we cannot allow this matter to pass by without calling your attention to your former statements, and lodging a most vigorous protest against your action in advertising and selling ad interim boxes after your assurance that there would be no more.

Very truly yours,

Capital Electric Co., Hopkins Equipment Co., Advanced Refrigeration, Inc., Rich's, Inc., Brown Distributing Co., King Hardware Co., Beck & Gregg Hardware Co., Henry L. Reid & Co., Megahee & Tomlinson, Fulton Bros. Elec. Co., Bame's, Inc., J. J. Haverty Co., Carroll Furniture Co., Standard Radio Shop, Electrical Appliance Co., and J. E. Waldrop, all of Atlanta, Ga.; City Drug Co., Thomaston, Ga.; Willcox Hardware Co., McRae, Ga.; Whiteley Motor Co., Warrenton, Ga.; C. H. McDonald, Lithonia, Ga.; R. B. Pollard, Sylvester, Ga.; J. C. P. Heinz, Selma, Ala.; I. C. Fields, Albany, Ga.; L. Moss Mer. Co., Calhoun, Ga.; Walker Hood Furn. Co., Waycross, Ga.; E. L. Hussey & Son, Fitzgerald, Ga.; Bridges Radio & Elec. Shop, Vienna, Ga.; Walker Drug Co., Montezuma, Ga.; Albany Housefurnishing Co., Albany, Ga.; Coleman Hardware Co., Eastman, Ga.; Yates Hardware & Furn. Co., Hartwell, Ga.; Randolph-Smith Co., Jefferson, Ga.; Brewster Furniture Co., Cedartown, Ga.; G. M. Veasly Elec. Co., Monroville, Ala.; Ocilla Pharmacy, Ocilla, Ga.; T. B. Glascock, Hartselle, Ala.; Whittle Battery Service, Augusta, Ga.; W. C. Drake, Buford, Ga.; H. B. Rawlinson, Elmore, Ala.; Dover Chevrolet Co., Ellijay, Ga.; Maxwell Bros., Augusta, Ga.; Reeves Music Store, Easley, S. C.; Madden Hdw. Co., Fayette, Ala.; Collinsville Music Store, Collinsville, Ala.; C. R. Roberts, Mansfield, Ga.; Singleton Furniture Co., Waycross, Ga.; Stubbs & Hogg Furn. Co., Cedartown, Ga.; Sterhi Bros., Macon, Ga.; Morel's Pharmacy, Blackshear, Ga.; W. G. Whidby, Adel, Ga.; J. Gordon Lowe & Co.; Boyetts Cash Store, Blakely, Ga.; Rhodes-Harkins Furn. Co., Augusta, Ga.; J.

(Concluded on Page 20, Column 1)

'34 Advertising Expenditure Is Ahead of 1933

Refrigerator Manufacturers Spend $1,071,364 In 6 Months

PHILADELPHIA — Manufacturers of household electric refrigerators spent $1,071,364 for advertising space in leading national magazines during the first six months of 1934, according to a compilation just received from the Curtis Publishing Co.

The 1934 figure represents an increase of 44 per cent over the $743,018 spent by refrigerator advertisers in the same period of 1933.

Leading the magazine advertisers was Kelvinator Sales Corp. which expended $236,960, or 22 per cent of the six-months total. Expenditure of $214,775, or 20 per cent, was made by Frigidaire Corp., while General Electric Co. paid out $194,460, or 18 per cent of the total figure.

The lion's share of refrigerator advertising went to *Saturday Evening Post*, advertisers spending $445,615, or 42 per cent of the total amount, for space in that publication. *Good Housekeeping* carried placements to the amount of $195,834, or 18 per cent, and $100,900, or 9 per cent, was spent in *Collier's*.

The total amounts spent by all companies in each publication, and the appropriations by the individual advertisers to the various periodicals are shown on page 13.

Big Machinery Group Elects Henderson

YORK, PA.—William B. Henderson, secretary of the Code Authority and Washington representative of Machinery and Allied Products Institute, is to become executive vice president of the Refrigerating Machinery Association, it was announced recently by W. S. Shipley, president of the association and of the York Ice Machinery Corp.

Mr. Henderson, who is also secretary of the Durable Goods Committee selected at the meeting of code authorities last March, will assume his new duties August 1, with offices of the association moved to Washington from Philadelphia.

Upon the formation of Machinery and Allied Products Institute in 1933, he joined the MAPI staff as assistant secretary and later became the Washington representative of that Institute, of which Refrigerating Machinery Association was one of the early members. Upon the election of the Code Authority for Machinery and Allied Products Industry, Mr. Henderson was elected secretary of the Code Authority.

When the Durable Goods Industries Committee was elected following the meeting of Code Authorities in Washington last March, Mr. Henderson was appointed secretary of the Committee, and continues to act in that capacity, supervising the work of Committee's staff in Washington.

12 Manufacturers Will Display at N.Y. Show

NEW YORK CITY—Manufacturers or their New York distributors of 12 makes of refrigerators have already contracted for display space at the National Electrical Exposition to be held Sept. 19 through 29 in Madison Square Garden here under the sponsorship of the Electrical Association of New York, Inc.

Refrigerators for which space reservation has already been made, according to Ralph Neumuller, managing director of the association, are: Sparton, Stewart-Warner, Grunow, Leonard, Crosley, General Electric, Kelvinator, Graybar, Apex, Westinghouse, Norge, Fairbanks-Morse.

U. S. Tax Revenue from Refrigerators Increases

WASHINGTON, D. C.—Manufacturers of mechanical refrigerators made tax payments to the government totaling $551,626 during May of this year, as compared with payments of $376,188 in May, 1933, according to a report recently issued by the United States Treasury Department.

AIR CONDITIONING

Chief of U. S. Weather Bureau Traces Air Conditioning History

(Concluded from Page 1, Column 2)

isn't just what people think it should be, and because those mythical levers in the weather bureaus haven't been pulled or pushed to produce rain, to stop rain, or do something else, I take a great deal of pleasure in recognizing today in behalf of the heat-ridden people of the world a contribution to the everlasting comfort, health, and happiness of humanity—air conditioning, exemplified here on the grounds of the World's Fair by the Frigidaire air-conditioned house.

"Ever since the dawn of history and probably for countless ages before means for recording human activity were evolved, man has sought to control the weather.

"Most of his earlier efforts were based on superstitious or religious beliefs, incantations of one sort or another, or the rhythmic beating of drums or tom-toms in the hope rain might be produced to save withering crops and protect entire tribes and nations from famines.

Savage Medicine Men

"Some savage tribes even today follow such crude methods of attempting to produce moisture in the one extreme, halting the fall of rain in the other, some having priests, medicine men or other designated dignitaries whose sole duties are intervention with the heavenly powers to send weather as the tribe may desire, for man—savage or civilized—never is happy with what he has at the moment, weather or anything else.

"Among our civilized peoples here in America, we find hardly less fantastic methods occasionally employed. We all know of the professional rainmakers who have boasted of their abilities to end droughts by the simple expediency of setting off a few explosives or of mounting receptacles containing small quantities of chemicals on poles or platforms in the vicinity of the drought stricken areas, then trusting to the law of averages and Old Mother Nature to come through with rain at the psychological moment so they may collect rainmaking fees.

Outdoor Weather Control Unlikely

"With all this talk brought on by the recent national drought, it must be conceded, from a scientific point of view, that the possibilities of actually controlling the outdoor weather and diverting or capitalizing on the powers of nature to produce weather when we want it and as we want it, are rather slim and that such control will not be possible for a great many centuries to come, if then.

"In this connection,I am talking of weather generally. In the citrus fruit belts, frosts are blocked by use of smudge pots and fires which generate enough heat to keep them away. Huge clouds have been observed forming over forest fires and other conflagrations, later producing rain, giving rise to the thought that one might end droughts by building a fire or fires big enough to produce rainfall.

City Could Be Refrigerated

"It would even be possible to refrigerate mechanically an entire city or locality and thus eliminate summer heat and humidity, but such a project would be impossible from a cost standpoint and therefore impractical.

"However, practical science, with its way of finding an answer to some particular problem of humanity, has succeeded in controlling the weather so far as the indoors is concerned and in making it possible for man to have his indoor weather as, when, and how he wants it.

Far-Reaching Effects

"That this newly developed control over indoor weather will have far-reaching effects is most certain, because people already are learning that there is no necessity for suffering from weather discomforts, and that just as man has comfort in the winter by means of artificially produced heat, he may have comfort in the summer by artificially produced cool atmosphere.

"We've all heard a lot of air conditioning as something 'new.' It really isn't as new as it's cracked up to be, for since the beginning of mankind, there has been air conditioning of one sort or another.

Prehistoric Discoveries

"Prehistoric man devised the idea of killing fur-bearing animals so he could obtain garments that would help his body retain its warmth. Then he learned that heat from fire would protect him and his kin from the pangs of cold.

"In the opposite seasons, with the humidity high and the sun beating down on his wooly head, he soon discovered that refuge in a cave, in higher altitudes or near moving bodies of water brought relief from intense heat. That was air conditioning in its earliest forms.

Heat Becomes Necessity

"Up through the ages came heat as a factor in comfort until homes, entire office and factory buildings and even trains and automobiles were heated. Heat, as a matter of fact, became a necessity along with clothing. One just had to have it.

"On the heels of the progress of development of artificially produced heat, it was only natural that man's ingenuity in improving his life on earth by mechanically refrigerating his perishable foodstuffs would lead to development of mechanically refrigerating, or air conditioning, the indoor atmosphere.

"It is only natural that men of science would attempt to solve the one thing that actually has the most lasting effect upon the human body and human activity, weather—because that is the subject of as much study, probably, as any one thing under scientific surveilance today.

"This is demonstrated by the far-flung operations of the United States Weather Bureau, of which I have the honor to be the chief, which, insofar as forecasting brains and instruments permit, attempts to determine in advance on the ground and in the stratosphere, at home and in other countries, what the weather will be tomorrow and days hence in every city and state, nook and cranny of the nation.

Weather Bureau Activities

"All this so that people in pursuit of recreation, business men desiring to gauge sales activities and shipments, farmers curious about crop possibilities and the knights of the airlanes all may know what to expect from the weather and what its effect on their particular activity will be.

"Because climate and weather, indoors and out, are as old as the earth, it is a common belief that weather bureaus didn't get under way when they should and are only new activities.

Aristotle's Influence

"The United States weather service is relatively new, yet a pioneer, having been established in 1871 about the time other farseeing governments set up observation and forecasting services.

"But Aristotle, the philosopher who has guided the thought of the world in so many different directions, really is the father of weather bureaus, for more than 2,000 years ago he set up a rather wide system of weather observation stations, then wrote a book on meteorology that was a standard textbook for twenty centuries following.

Trains, Hotels, Restaurants

"Aristotle voiced a number of theories that appear somewhat peculiar in view of present day forecasting and climatological knowledge, but his thinking is the keystone of our present weather bureau system.

"Arriving in Chicago today from a month's inspection swing westward from Washington to the Pacific Coast, I was struck with the thought that despite record-breaking temperatures, I have not been really uncomfortable because the trains on which I traveled, many of the hotels in which I slept, and most of the restaurants in which I ate were air conditioned.

"Engineers now have widened the scope of air conditioning so that the children in the nursery, invalids, the aged, mother and even dad may have absolute year-'round comfort at home and in business.

Troubles of a Weather Man

"In fact, the poor old weather man, berated and cussed by his constituents because he doesn't pull that mythical lever and make it cool, push it and warm things up a bit, would have an easy life sitting in his swivel chair with his feet on his desk, reflecting that every cloud has a silver lining—if he only could do with the outdoor weather what even a small child now can do with the indoor atmosphere by flicking a switch or turning a small knob.

"But life for the weather man is not so simple. The forces of nature are powerful and the flicking of a switch cannot prevent national droughts or divert blizzards.

From Cradle to Grave

"In fact, this flicking of switches to control the indoor weather may lead us a long way. Did it ever occur to you that air conditioning actually has something to do with men from the cradle to the grave?

"Take the incubator baby and those fine quintuplets up in Canada. Where would they be without the air conditioned atmosphere supplied by incubators to preserve their meagre supply of body heat so they can survive? The home, the office, the club, the pullman car are air conditioned, and now the final stopping place on the journey of life, the funeral parlor, is taking up air conditioning.

"The hotel of the not-too-far distant future may use as its national advertising slogan, 'Ideal climate for every guest,' with various floors conditioned with the climates of the different states so the traveler may have cool quarters along with his ice cubes and sparkling water.

Human Thermometers

"In fact, can't you imagine the brass buttoned elevator boys saying, 'This car stops only at Arizona, Nevada, New Mexico, and Utah,' or 'This car goes to the Berkshires, the North Woods, the Rockies, and the Adirondacks.'

"As Charles F. Kettering, General Motors vice president and enthusiastic advocate of air conditioning, so often has said, the human body is nothing more nor less than a wet-bulb thermometer and is guided in its function and reactions by the humidity and temperature conditions to which it is subjected. I might explain that a wet-bulb thermometer registers humidity as the dry bulb type, with which all of us are so familiar, registers temperature.

"That's why it doesn't seem so strange to learn of the many uses to which air conditioning is being put. The owner of a large racing stable, for instance, is planning to put movable air conditioning units in the box stalls of his best animals to better them for racing in the summer months.

Aids Gum Manufacture

"And, it may be interesting to know that the inveterate gum chewer gets better chews per stick because the higher grades of gum are manufactured in air conditioned rooms.

"Why, the mental equilibrium and physical strength of the governor of this state, Henry Horner, is maintained by the air conditioned atmosphere in which he works, despite the gruelling demands for time and attention by politicians, voters and the man who has the one idea that will save the state and the country.

"From the therapeutical side of air conditioning, there are many angles, but probably the most interesting at this time of the year is that having to do with the vast army of 6,000,000 victims of hay fever and pollen asthma, an army of good people who sneeze their way through several months of the year barred from normal business, social and home activities.

"The experiments conducted by Dr. Leslie N. Gay, the noted allergist, at Johns Hopkins in Baltimore, offers a mecca for hay fever sufferers.

"Climate undoubtedly has determined where the cities and centers of our highest culture and civilization have been located. It is not beyond the realm of comprehension, then, to wonder if development of air conditioning may not cause a redesigning of the economic map of the world.

"The energetic, hard-hitting tactics of the northerner who works hard and plays hard because the climate in which he lives inspires and invigorates him to greater activity, has had much to do with the development in our northern states of giant industries and other activities. These in turn bring a centralization of buying power.

"Is it expecting too much to predict that air conditioning of the working quarters, homes and other buildings occupied by residents in the hotter and more humid areas of the earth may cause new activity in those parts that will open up to use natural resources beyond our imagination?

Re-Employment Fostered

"Or that the developments made possible by helping men to work in strength sapping climes will take up the employment slack and open new channels of buying power? I don't think so.

"For in his recently announced investigation, Dr. C. A. Mills, professor of experimental medicine of the University of Cincinnati, said:

"'High daytime temperatures are not depressive unless accompanied by warm nights. It would therefore seem possible to provide all the desired stimulation for people in the tropics by artificially cooling their sleeping quarters.

Salute from Meteorologists

"'This is just as practical as the heating of houses in the cooler regions. We may well look forward to the widespread use of such cooling measures wherever people from the cooler countries are forced to live in the tropics or subtropics. By this means people may retain their normal vigor and effectiveness.'

"The meteorologists of the world salute the men of science who are developing comfort for humanity. These engineers are the weather men of the indoors. We of the outdoors believe their work will have just as much effect upon the welfare and progress of mankind as does the climate of the outdoors, for they must go hand in hand. What man imagines, he accomplishes, and he is realizing his hope that he may be free from weather eccentricities."

Correction

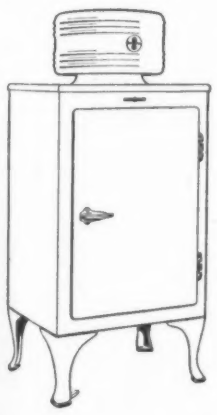
Our attention has been called to an error which appeared in the article on air conditioning at A Century of Progress in the June 6 issue of ELECTRIC REFRIGERATION NEWS. The article stated that the 40 and 50-hp. multi-speed, squirrel-cage motors driving the CO_2 Wittenmeier compressors in the Black Forest Village were built by General Electric. It should have given the Star Electric Motor Co. credit for furnishing these two motors.

Chief Gregg Dedicates Frigidaire Air-Conditioned Home at World's Fair

Willis R. Gregg, chief of the United States Weather Bureau, Washington, D. C., gave the principal speech at the dedicatory exercises, which were broadcast over more than 50 NBC stations, of the Frigidaire air-conditioned house at A Century of Progress in Chicago. (1) He is shown reading a sling psychrometer, which registers both temperature and humidity, and comparing it with the reading of a barograph on the table. The other instrument is an anemometer, which registers the strength of the wind. It is in the room merely for exhibition, as the air conditioners never create more than a gentle zephyr that wouldn't move the anemometer a hair's breadth. (2) "Our atmosphere at times is wringing wet," Mr. Gregg explains to Mrs. Gregg as they inspected the house. The fish bowl contains an amount of water equivalent to the humidity drained out of the air in one hour by the air-conditioning equipment, Mr. Gregg pointed out. At the left is shown a bowl containing the dirt taken out of the air in the house in a week's time. (3) Mr. Gregg delivers the radio speech published on this page.

Again FIRST!

Again General Electric research and engineering make a great contribution to modern living! The Liftop refrigerator and Companion range, pioneered by G-E, bring General Electric refrigeration and electric cookery within reach of every home—open a vast new market for refrigerator retailers.



ANNOUNCEMENT of the first General Electric Monitor Top created a sensation in electric refrigeration. Within three years the G-E refrigerator took first place in the industry, became the leader in sales. G-E dealers prospered. Today the G-E Monitor Top refrigerator with its famous sealed-in-steel mechanism is universally recognized as the standard of excellence. It has established an unparalleled record for dependable, trouble-free refrigeration service at low cost. G-E dealers are now enjoying the advantages of public preference for the G-E Monitor Top.

The new, modernly styled G-E Flat-top refrigerator created a style sensation almost overnight! Many call it the most beautiful refrigerator in America. It offers quality, features and modern beauty of design that cannot be matched by any other conventional type refrigerator. Again General Electric opened new avenues of profit to refrigerator dealers with a new model that has become the style leader of all popular-priced refrigerators.

And now comes the revolutionary new G-E "Liftop" refrigerator at a price that reaches right into the heart of the mass market! Now the economy and convenience of modern refrigeration is placed within reach of *every wired home in America!* An undreamed of volume of business awaits the alert refrigerator dealer who seizes the opportunity!

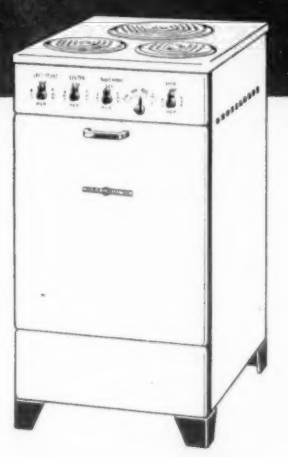
The new G-E "Liftop" has the lowest operating cost of any electric refrigerator in the world. It has more than enough food storage capacity for a family of eight people. Freezes 20 large ice cubes at a time. Powered with the famous G-E sealed-in-steel mechanism that requires no attention, not even oiling—the same in principle as the world-famed Monitor Top. White Glyptal-baked enamel exterior, stainless

and a COMPANION RANGE

at

$72

plus freight



porcelain interior, stainless-steel freezing shelf that cannot chip or rust. 5 years' protection on sealed-in-steel mechanism may be obtained for only $7 additional.

The uses for the new G-E "Liftop" are many. It is ideal for homes with modest incomes and restricted floor space. It is excellently suited for summer cottages, recreation rooms, butler's pantries, stores, offices, restaurants, taverns, roadside stands and concessions.

Again General Electric is *first* with a refrigerator that makes possible a volume of business *three times as great* as you are now enjoying! Together with G-E Monitor Top and Flat Top models it rounds out a line of electric refrigerators unmatched for dependable performance and styling and lowest cost—and built by the world's largest electrical manufacturer. Write or wire for details of the G-E refrigerator franchise. General Electric Co., Specialty Appliance Sales Dept., Sec. DF72, Nela Park, Cleveland, O.

BOTH FOR THE PRICE OF ONE!

The new General Electric "Liftop" refrigerator and Companion range are designed for either separate installation or as one combined unit. Now both electric refrigeration and electric cookery are available at a price previously paid for one!—

Combination Unit

$142.50

plus freight

GENERAL ELECTRIC

WATER COOLING

Hansel Cites Reason for Revived Interest in Electrically Refrigerated Water Coolers

BROOKLYN — Chas. F. Hansel, president of the Filtrine Mfg. Co. declares that the past few months have brought a substantial increase of inquiries, sales, and a general rejuvenation in the water-cooling business.

He attributes this to:

1. Labor demands on owners for better drinking water facilities.
2. More business confidence on the part of owners.
3. Actual necessity of new and replacement equipment.
4. The advent of large size condensing units.

With large size condensing units comes greater demand for water-cooling applications. Jobs that were out of reach last year can be readily handled this year.

In this class, for instance, are water-cooling installations for:

Air-conditioning (indirect cooling systems).

Bakery—batch and jacket coolers.

Replacements for existing large circulating systems.

Process water cooling for rubber plants, steel rolling mills, etc.

Large recirculating systems to extract heat from chrome, silver, and nickel-plating tanks.

"Commercial engineers are finding the chrome, silver, and nickel-plating trades a very likely field for large condensing units. The high voltage required for fine work adds heat to the plating bath and the heat in turn is a detriment to quality and fast production.

"Up-to-date plating tanks are jacketed so that chilled water may be circulated to keep this heat down to a working minimum."

3 Compressors Used in Water Cooling System

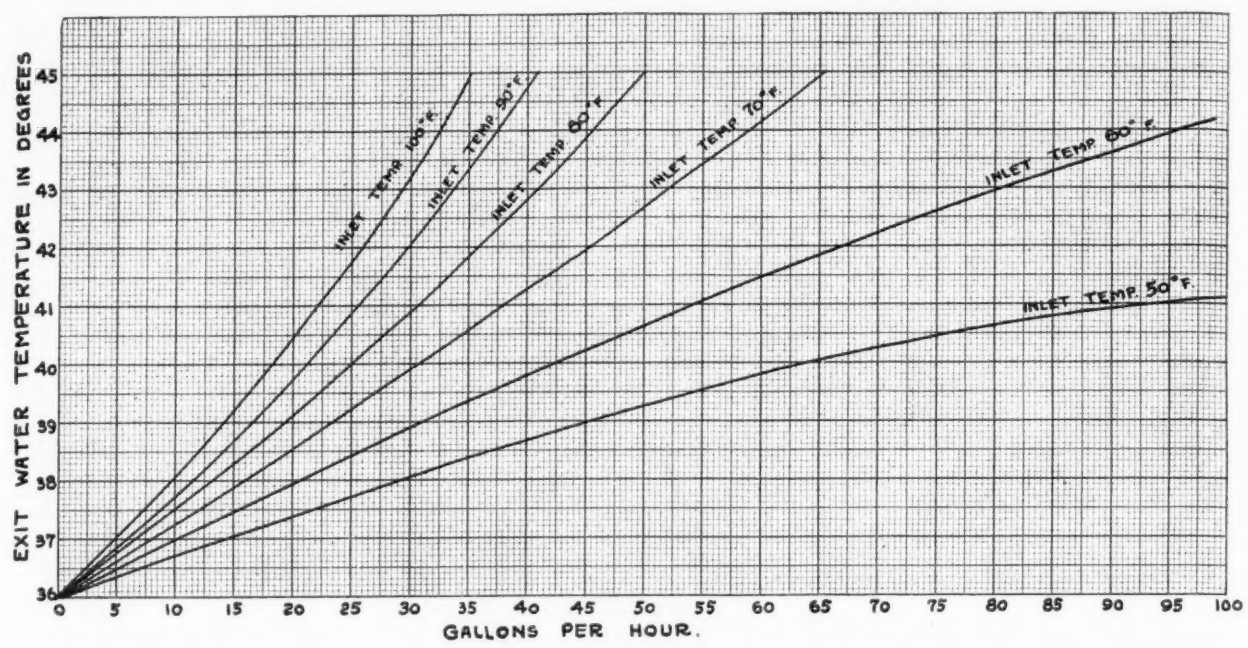
KANSAS CITY—One of the most advanced installations of electrically refrigerated water coolers to be found in the city has been installed in the Kansas City Power and Light Building here. Temprite water coolers are being used.

The utility's building is 32 stories high and has one Temprite cooler on each floor, which serves the entire personnel. A 1½-hp. compressor is located in the basement, which supplies refrigeration for water coolers on the first 11 floors.

Another 1½-hp. compressor is located on the eleventh floor and serves the next 11 floors, and a similar compressor is located on the twenty-second floor to handle the water on the last 10 floors.

Engineers making the installation declare that by splitting up the refrigeration load in this manner, the size of refrigeration equipment needed was approximately half of what would have been necessary if one centrally-located compressor had been used.

Capacity Chart on Water Cooler



Above graph shows capacity of Temprite model S-4-W at various inlet and exit temperatures.

Temprite Improves Water Coolers

DETROIT — The 1934 method of cooling water in coolers made by Temprite Products Corp. consists of running the water through a tube which is immersed in liquid refrigerant, which provides a maximum amount of heat transfer.

According to H. B. McLaughlin, chief engineer, the heat transfer on a Temprite cooler is so rapid that only a four degree temperature differential is required to give catalog capacity ratings.

This means that a cooler set to deliver water at 40° F. would, under no circumstances, have a refrigerant temperature lower than 36° F.

By having such a rapid heat transfer, Mr. McLaughlin declares, these coolers can be made very small in size and still have a large capacity. For instance, a Temprite cooler that is 7½ inches in diameter and 9 inches high will cool 16 gal. of water per hour, from 80° F. to 40° F.

Temperature is maintained at a constant point within 2° F. by Temprite's pressure control valve. This valve is sensitive to four ounces of pressure.

The distance the valve is opened is in proportion to the heat to be removed from the water passing through the cooler. A large stream of low-temperature incoming water or a small stream of high-temperature incoming water produces sufficient heat to open the valve wide.

The float in Temprite coolers this year is four inches high instead of two inches as in all previous models. This change was made in order to handle more effectively various types of oils that are now being used by several compressor manufacturers.

Some oils, according to Mr. McLaughlin, are more highly soluble in refrigerants causing a foaming condition in the low side. By raising the height of the float, oil-laden refrigerant is prevented from boiling over the top and causing a sweating or frosting suction line.

This year all sand-casting top plates have been replaced by drop-forged brass plates. These plates are of sufficient thickness to withstand many times the pressure ordinarily encountered in water cooling. These forged plates have bosses which may be drilled out to make one coil cooler, two coil coolers and three coil coolers. This makes it possible to cool three different kinds of drinks, in the same cooler, at the same time.

The accompanying graph gives the capacity in gallons per hour of the Temprite cooler model S-4-W, from inlet temperature of from 50 to 100° F., to various exit temperatures of from 36 to 46° F.

Pressure and Bottle Type Self-Contained Coolers Marketed by Cordley & Hayes

NEW YORK CITY — Five models are included in the 1934 line of electrically refrigerated water coolers designed and merchandised by Cordley & Hayes of this city, and manufactured by the Fedders Mfg. Co. of Buffalo.

Three types of pressure coolers are included in the Cordley & Hayes line. Two of these models are particularly designed for office use, equipped with automatic self-cooling faucets.

One of these models contains a special compartment which cools three quart milk bottles or the equivalent.

New 'Industrial' Model

The third pressure-type cooler, which is just now being introduced, is a compact model especially designed for industrial plants.

The top is a porcelain bowl, with sanitary angle jet bubbler to be used not only for direct drinking but also to fill cups and glasses.

Whereas the other pressure cooler models give 4¼ gal. per hour cooling capacity, this top plate bubbler model, equipped with a pre-cooler, provides cooling capacity up to 7½ gal. per hour.

There are two Cordley & Hayes bottle-type coolers—one with, and one without, a food storage compartment. These bottle-type coolers, used chiefly in business offices, are in grained walnut with grained mahogany finish.

Storage Compartment

They have a one-gallon reserve capacity, with cooling capacity of 2 gal. per hour. The storage compartment will hold three quart milk bottles or the equivalent and cools to a temperature slightly below that of the drinking water.

According to W. J. Mafera of the Cordley & Hayes organization operating tests have shown that the bottle-type coolers, delivering 50° F. water at 80° F. room temperature show a kilowatt consumption of only 1 2 over a 24-hour day, with 5 gal. of water being drawn during the day. The two office-type pressure coolers showed a kilowatt consumption of 1.9 while delivering 50° F. water in an 80° F. room with 5 gal. being drawn for the day. Inlet water in these tests was at room temperature.

Single-Cylinder Compressor

The bottle-type coolers are equipped with a single-cylinder, sulphur dioxide compressor powered by a ⅛-hp. motor and with a refrigerating capacity of 120 lbs. I.M.E. at 400 r.p.m.

Temperature control is conveniently located but concealed in the machine compartment to prevent tampering with the adjustment. Control allows nine temperature adjustments by simply turning cold control down to the desired temperature.

Expansion Valve

The unit is equipped with a Fedders automatic expansion valve, adjustable by removing hexagon sealing cap. Correct operating pressure is 2½ lbs. when coil is cold. Valve is enclosed in a metal box insulated with Gimco rock wool to prevent frosting.

The cabinet is made of furniture steel, made of one piece with the exception of the front upper panel, which is welded into place, the lower front panel being removable to allow ease of service. Insulation is Gimco rock wool throughout.

The office model pressure-type coolers have a single-cylinder compressor operated by a ¼-hp. motor with a refrigerating capacity of 195 lbs. I.M.E. at 6 lbs. back pressure and at 575 r.p.m.

Temperature control, expansion valve and cabinet construction is the same as on the bottle-type models.

Frigidaire is Exhibitor at Fair in Germany

LEIPSIG, Germany—The Frigidaire exhibit at the Leipsig Fair here demonstrated in a comprehensive manner just how mechanical refrigeration is used, not only in the home but in commercial establishments.

Satisfying Thirsty Patrons

Marie Schoening and Thelma Welbaum get a drink from a Frigidaire cooler in the lobby of the Victory theater in Dayton before stepping in to see the screen production. They are Frigidaire employes.

Wagner
type RA
repulsion - start - induction

. . . . . *the motor that dominates the large single-phase motor field*

There are several good reasons why Wagner's type RA repulsion-start-induction motor is so extensively used where integral-horsepower motors are needed on single-phase circuits.

1. It is self-contained—that is, it does not depend upon auxiliary devices to help it get started.

2. Its starting-torque is very high. At the same time, the starting-current is comparatively low.

3. The brushes lift when the motor approaches full-load speed. The RA starts as a repulsion motor, and when the speed reaches a predetermined value, an automatic mechanism short-circuits the rotor windings, converting the motor into an induction motor. The same mechanism also lifts the brushes, as they aren't needed after the rotor-windings are short-circuited. Thus interference with radio reception is minimized, and brush noise, brush and commutator wear and brush friction are limited to the brief starting period only.

Ever since Wagner put the first commercially successful single-phase motor on the market in 1896, this type of motor has dominated the large single-phase motor field. Wherever integral-horsepower single-phase motors are required, the Wagner RA is the logical choice. For complete description ask for Bulletin 173.

Wagner Electric

MOTORS TRANSFORMERS FANS BRAKES

WAGNER ELECTRIC CORPORATION
6441 Plymouth Avenue
St. Louis, U.S.A.

L234-3A

Please send copy of Bulletin 173 on integral horsepower single-phase motors.

Name Position

Firm

Address

If also interested in Fractional-horsepower motors, place "X" here. ☐

● Extra Dry ESOTOO
LIQUID SULPHUR DIOXIDE
● V-METH-L
METHYL CHLORIDE

WEST NORFOLK, VA.
131 State St., Boston, and
76 Beaver St., New York

New Westinghouse Campaign Directed At Ice Box Users

MANSFIELD—Westinghouse dealers and salesmen the country over began on July 16 a mid-summer sales drive built around distribution of free ice box deodorizers to housewives still using ice refrigeration. The campaign will close Aug. 31.

The electric refrigerator dealers are advertising a free "Cleanaire food conditioner" for all ice box users who fill out a coupon clipped from an advertisement or write to a retailer requesting one. The plan was given a test run in New York City recently, and Westinghouse factory officials report that 4,200 inquiries were pulled from the first day's advertising. Of all inquirers to date, 45 per cent have been classed as live prospects.

Directed to Ice Users

Campaign is directed particularly toward ice users living in one- or two-family houses, and eliminates apartment dwellers, owners of mechanical refrigerators, and persons living in houses not wired for electricity.

Upon receipt, all coupons are sorted by the dealer and given to salesmen in districts from which they came. The salesman delivers and installs the Cleanaire personally, at the same time calling attention of the housewife to a thermometer mounted on the deodorizer.

After making a preliminary reading he leaves a card on which the housewife makes her own record of ice box temperature readings several times daily for a week. At the end of this period the salesman will call back with the complete sales demonstration.

Date for Savings Plan

On his first visit the salesman also obtains the information necessary to fill out a "food budget savings plan" to interest the housewife and to show her features of electric refrigeration.

A complete schedule of advertising and sales promotion has been organized. Four special newspaper advertisements have been prepared, offering the Cleanaire food conditioner and giving a brief sales story on Westinghouse refrigeration.

Other sales promotion helps prepared for this drive include a demonstrator which salesmen can use in the showroom to tell prospects "what's what" about refrigerator costs, a plan-of-action book for dealers, a supply of radio shorts, a handbill for communities without newspapers, a movie trailer, and an activity chart on which the dealer can chart his own progress.

Newspaper Cooperates With G-E Dealer

FT. WAYNE, Ind.—A novel plan of promotion, which in five months has brought nearly 1,800 homemakers from representative homes into a model G-E kitchen, has been carried on here by E. A. Barnes Electrical Appliance, Inc., General Electric dealer.

The program has not only brought these housewives into the kitchen, but it has shown them, by means of an informal demonstration, the practical value of electrical equipment.

Inception of the plan came when the Ft. Wayne *Journal-Gazette* asked Dealer Barnes to cooperate in a plan to conduct demonstrations in homes Barnes countered with the proposition to hold demonstrations in his institute kitchen, with other advertisers participating.

The newspaper accepted, sponsored the meetings, and assigned its society editor to assist Mrs. B. Zimmer, Barnes' home service director.

Through an ingenious grouping of advertisers, the plan is carried on at a nominal expense to the dealer.

Statistics on the meetings show that during five months, with a total of 72 meetings, 1,796 women have attended. Duplication in attendance is less than 3 per cent. The groups, by a carefully worked-out plan, are drawn entirely from the upper middle class of Ft. Wayne homes.

The selling aspects of the school are introduced subtly. A valuable prospect list is provided to the dealer, who can then arrange a successful follow-up, certain that the woman he is interviewing has been educated to the value of modern electrical appliances.

'Card' Introduces Lindburg To St. Louis Newcomers

ST. LOUIS—A "card of introduction" is the novel stunt being used by the Arthur R. Lindburg Co., Westinghouse distributor here, to make itself known to new families that come to St. Louis.

The card, which is sent to persons known to have just moved into the city, contains a map showing the location of the Arthur R. Lindburg Co. main store, and invites the newcomer to come and get a gift—a fruit basket—which is waiting at the distributorship for him or her.

Kitchen Designer Tells How Appliances For New Home Were Sold

By Phil B. Redeker

DETROIT—Retail division of Caswell, Inc., Michigan G-E distributor, is installing an electric kitchen in the new home being erected in Rochester, Mich. (a suburb of Detroit), by F. R. Chapman.

The three major kitchen appliances —refrigerator, range, and dishwasher —will be installed, together with a fan. Caswell will also install cabinets.

The kitchen planning department heard about Mr. Chapman's new home —which, incidentally is of the Cape Cod Cottage style of architecture with plans drawn by Mr. Chapman himself—from the local G-E air-conditioning dealer.

L. B. Blum of the Caswell kitchen planning department, accompanied by a salesman, paid Mr. Chapman a visit, and found that they didn't have much of a selling job to do. Pretty well sold on the all-electric kitchen idea by advertising, Mr. Chapman was waiting for someone to come along with a comprehensive plan for *his* kitchen.

Mr. Blum drew up a sketch—keeping the kitchen line production idea in mind, with refrigerator nearest the door and as the focal point of the mixing operation, and with the range nearest the dining room—with all elevations and with a color scheme for walls, ceilings, and floor.

The sketch was mounted on a board and covered with cellophane. The entire job was then priced and all the material presented to Mr. Chapman, thus giving him a complete portfolio on his kitchen equipment.

Mr. Chapman did not suggest a change in the plans, and signed a contract for the equipment.

"There were a number of reasons why we were able to sell this job," Mr. Blum declares. "In the first place we took the entire burden of planning the kitchen from the builder's shoulders. We even planned the lighting for him—it will be indirect from coves over the windows.

"The cleanliness argument was a factor, not only from the standpoint of the cleanliness feature of the electric range, but because the way the kitchen is constructed. All cabinets are flush against the wall and each other, and there is no door trim.

"The matter of economy is important, too. We were able to give the prospect an estimate on the monthly power cost, and at the same time we showed him the savings by quantity buying and reduced spoilage with the refrigerator, and reduced shrinkage with electric cooking."

Equipment being installed in the kitchen consists of an S-85 Monitor Top refrigerator, a G-13A electric range, a dishwasher, Elgin steel kitchen cabinets, and a ventilating fan.

Dept. Store Ties in with G-E Advertising

CHARLOTTE, N. C.—Ivey's Department Store used a float carrying four pretty young women dressed in evening gowns and the two new General Electric refrigerator models as a way of tying in with the G-E advertising in *The Saturday Evening Post*.

A large sign on the side of the truck bore the copy, "You have seen the new General Electric refrigerators in *The Saturday Evening Post*, now see them at Ivey's."

Mueller Lumber Co. Takes over Building

DAVENPORT, Iowa—Mueller Lumber Co., Kelvinator distributor for eastern Iowa and western Illinois, have taken over the building here formerly occupied by the Goodyear Tire & Rubber Co., it was announced recently by Walter Mueller.

An increase in the firm's refrigeration business to a point more than double that of last year, and a corresponding increase in other appliance lines was given as the reason for the move.

The retail display and sales rooms of the appliance department, under the management of M. W. Andresen, will be maintained in the Mueller Lumber Co. building at the corner of Second and Scott Sts.

Brunner Sales Increase In First 6 Months

UTICA, N. Y.—Refrigeration sales of the Brunner Mfg. Co., as reported by W. C. Allen, sales manager, for the first six months of 1934 are 233 per cent of the volume of a year ago.

Today's STOP, LOOK and BUY SIGN in Electrical Refrigeration

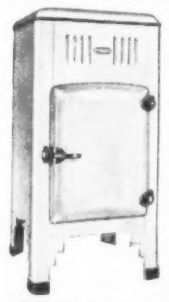
CROSLEY SHELVADOR

$99.50

Tested and Approved Good Housekeeping Institute

MODEL EA-35

This Crosley Shelvador has a NET capacity of 3.5 cu. ft. and 7.5 sq. ft. of shelf area. Two ice trays, each of 21-cube capacity, 42 cubes in all. Equipped with no-stop defrosting control which will defrost the refrigerator while it is operating. Thoroughly insulated throughout including door. Has round cornered porcelain interior and white lacquer exterior trimmed with black. The stamped brass hardware is chromium plated. The ventilated front allows refrigerator to be placed close to wall or in limited space.



Model E-55
$157.50

"Usable Capacity" increased 50%

The Crosley Shelvador feature provides a definite place for many small items that clutter up the shelves of ordinary refrigerators. Makes things easy to find. Increases "usable space" about 50% over "rated capacity."

Ventilated Front

Exclusively a Crosley feature (on all Crosley models) the Ventilated Front permits cool air to be drawn through the front, expelling it from the rear, properly ventilating the power unit even when refrigerator is placed in a limited space or close to wall. Other features of all Crosley models are: No-stop defrosting control, chromium plated stamped brass hardware of modern design, thorough insulation throughout (including door), round cornered porcelain interior, white lacquer exterior trimmed in black, ample tray capacity, quick freezing.

All models have automatically illuminated interior

CROSLEY TRI SHELVADOR

ADDS THREE ADDITIONAL EXCLUSIVE FEATURES TO THE FAMOUS SHELVADOR

In addition to all of the outstanding features of the Crosley Shelvador Series described above, the Crosley Tri-Shelvador Series incorporates three additional features never before combined in a home electric refrigerator, all of which are exclusive with Crosley.

1—**THE SHELVATRAY** . . . When articles are wanted from the refrigerator, place Shelvatray in a horizontal position, place the articles on it and carry them, Shelvatray and all, to table, range or cabinet. Shelvatray (Patent pending) is an exclusive Crosley feature.

2—**THE SHELVABASKET** . . . Handy for greens, carrots, cabbages, canned goods and the like. Another exclusive Crosley feature. Swings with the door. Shelvabasket is not refrigerated. (Patent pending.)

3—**THE STORABIN** . . . A place for potatoes, onions and other bulk items. Exclusive with the Tri-Shelvador. Storabin is not refrigerated. (Patent pending.)

In addition to these, the Tri-Shelvador models are equipped with a self-closing porcelain door to the freezing chamber. Model E-55 Shelvador (left) has 5.5 cu. ft. NET capacity, 11.6 sq. ft. shelf area, 3 ice trays—63 cubes—one double depth tray. You must *see* the new Crosley Shelvador and Tri-Shelvador electric refrigerators to appreciate fully the advancement in refrigerator design, convenience, and performance that they represent. There is a Crosley dealer near you—ask him to show you both series —make every comparison that occurs to you—your good judgment will then dictate which electric refrigerator to handle. *All models available in full porcelain at slight extra cost.*

Montana, Wyoming, Colorado, New Mexico and west, prices slightly higher.

Streamline Beauty

THE winging stride of Crosley toward the top in electric refrigerator sales is one dramatic climax after another. First, the Crosley Electric Refrigerator—on sheer merit and without extra features—established itself in the nation's favor for its quiet, trouble-free operation; then came Shelvador with an eye and a sales appeal no electric refrigerator ever had. This year it's Shelvador plus Streamline Beauty, plus many other features, lifting the Crosley line clear out of competition.

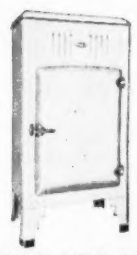
And that's only half the story. For, with all these features, the Crosley line has offered a value as out-of-the-ordinary as the features themselves. Crosley stands alone in giving dealers an opportunity to sell custom quality at mass-production prices.

In view of all this, is it any wonder that Crosley dealers have made a sales showing that is the most sensational in the history of electric refrigeration? Is it any wonder that competition acknowledges the Crosley line for 1934 to be the most aggressively merchandised, the most active, and the most feared in the entire field? If you really want to know how Crosley Shelvador Electric Refrigerators are cutting into the market, ask not only the Crosley dealer, but ask dealers in competing lines.

With a powerful national campaign in leading magazines, with a co-ordinated *sales plan*, and incomparable features, the Crosley line is leaping to the front in sales and profits, bringing with it those dealers who, aggressively and enthusiastically, align themselves with Crosley.

The cashing-in-time is NOW. See your Crosley distributor immediately.

Model EA-43
4.3 cu. ft. NET capacity, 9.15 sq. ft. shelf area, 2 ice trays—42 cubes—one double depth tray.
$117.00



Model EA-55
5.5 cu. ft. NET capacity 11.6 sq. ft. shelf area, 3 ice trays—63 cubes—one double depth tray.
$145.00

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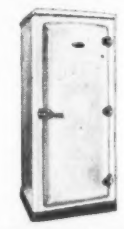
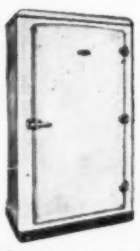
***Crosley* Tri-Shelvador**



Model E-43
4.3 cu. ft. NET capacity, 9.15 sq. ft. shelf area, 2 ice trays—42 cubes—one double depth tray.
$135.00

Model E-55
5.5 cu. ft. NET capacity, 11.6 sq. ft. shelf area, 3 ice trays—63 cubes—one double depth tray.
$157.50



Model E-70
7 cu. ft. NET capacity, 14.9 sq. ft. shelf area 4 ice trays—84 cubes—one double depth tray.
$185.00

THE CROSLEY RADIO CORPORATION

(Pioneer Manufacturers of Radio Receiving Sets)

Home of *"the Nation's Station"*—WLW—500,000 watts—most powerful in the world—70 on your dial

POWEL CROSLEY, Jr., *President* CINCINNATI

NRA ALL PRICES INCLUDE DELIVERY..INSTALLATION..ONE YEAR FREE SERVICE NRA

WATER COOLING

Water Coolers for the Navy

Lined up for shipment to various United States Navy yards are these Starr electrically refrigerated water coolers.

Kelvinator Branch Concentrates Separate Force on Water Coolers & Boosts Sales

By Herbert W. Browne, Manager, Commercial Division, Kelvinator Sales Corp., Cambridge, Mass.

"CONCENTRATED effort" is the reason our water cooler sales volume has increased from zero to a point where it is bumping the $100,000 a year mark for 1934.

The old method of operation was to carry water coolers as an orphan item in the commercial division. The new method is a water-cooler department as a part of the commercial division, and this department is given a definite monthly quota.

Prospect List

A list has been prepared containing the names and addresses of all concerns in the various municipalities comprising the metropolitan Boston area, having a $5,000 or better rating, also all dentists, physicians, and attorneys.

This list is circularized at the rate of 10 names per day per salesman. Two days later each salesman calls upon his 10 prospects and reports the result of his interview.

Employ 15 Salesmen

We maintain an average sales force of 15 commission salesmen, who confine their activities to water-cooler selling only. All salesmen are required to follow the outline of our presentation which is built around the principal points that a Kelvinator water cooler helps to modernize the office or plant, as the case may be; that it assists in diminishing the 3 o'clock fatigue, thus increasing production; that it improves health and reduces absenteeism—in other words, we sell it as an investment which pays a very tangible return.

In addition to our direct frontal attack, a connection was made with Massachusetts' largest bottler and distributor of spring water and we are assisting them in a direct mail and sales campaign to convert their star accounts from ice to electric water-cooler users.

Campaigning with our metropolitan Boston area dealers also is bringing us a considerable volume. The metropolitan Boston area is being followed in detail and with success in seven of the larger points in our distributing territory.

Concentrated effort, and as we see it, concentrated effort only, converted an orphan item into a major and profitable item of the line.

Water Cooling Must Be Sold Year 'Round

BROOKLYN — Experience has taught commercial managers and field engineers many important points regarding water coolers, according to Chas. F. Hansel, president of the Filtrine Mfg. Co. These are:

1. Not to use air-cooled condensing units in cotton mills and tobacco plants where the flying lint and tobacco dust so easily plug the condensers.
2. Not to install highly finished "package office coolers" in foundries and steel mills, where the "usage" and "treatment" soon break down the best of units, causing replacement with larger and heavier type coolers.
3. Not to be stampeded into accepting orders calling for units that he feels are too small for the requirements of the owner.
4. To adhere to his recommendations as to type, make and size of cooler to use, both of "package" and "commercial" sizes.
5. That water cooling is not just a seasonal sale, but must be worked the year around in order to have appropriations passed and budgets made up to include water coolers.

Filtrine Coolers Use 'Storage' Principle

BROOKLYN — Filtrine water coolers are primarily "commercial" as to size and application, beginning in size where the "package type" of self-contained coolers leave off. They are offered in both cabinet and remote models for use with any refrigerant and with machines ranging from ⅛ to 20 hp.

They may be described as "storage" or "tank" type coolers, featuring the storage of chilled water to meet "peak" requirements. The storage of stock Filtrine coolers range from 2 to 150 gallons. Larger storage coolers are made to order.

The combination of a Filtrine 25-gallon storage water cooler with a ¼ or ⅓-hp. unit, enables the salesman to offer a large amount of chilled water that may be withdrawn in a very few minutes, at low initial operating cost.

This claim is illustrated by Chas. F. Hansel, president of Filtrine Mfg. Co. by the following example: A line of 580 people could pass before such a cooler and each obtain an 8-oz. glass of 50° water as fast as they could be served.

The design of Filtrine coolers make them suitable for duplexing with other commercial equipment and for multiple installations where several coolers are operated from one unit, Mr. Hansel states, and the storage features makes "dead end" installations practical.

Factory Type Water Coolers

The company offers a special line of factory or industrial type water coolers for heavy duty installations in foundries, factories, steel and cotton mills, and etc.

These factory models are available in different sizes and capacities with various combinations of bubbler and drinking glass dispensing fixtures. To meet southern requirements for suitable equipment for "Whites" and "Blacks," these cabinet coolers are finished half in white and half in black with bubblers at each end.

Water Coolers for Air Conditioning

To meet conditions where, for one reason or another water is required as an indirect cooling medium, Filtrine offers a new line of shell-and-tube type water coolers, ranging in capacity from 10 to 150 gallons per minute, suitable for use with as many condensing units as are required.

Specially Processed Pipe Coils

"For low-temperature jobs of large capacity, steel pipe has, for years, been widely used. Modern refrigerants demand that such coils must be absolutely clean and dry. To meet these requirements, Filtrine has developed a means of cleaning the inside of steel pipe, removing all scale, rust and moisture," Mr. Hansel states.

Filtrine's double-tube-counter-flow cooler has been applied to wine cooling in a number of instances. This cooler is offered in sizes to load compressors up to 15 tons. The wine tubes in the coolers can be furnished of any suitable metal to meet the owner's requirements, according to Mr. Hansel.

Engineer Gives Reasons for Water Cooler Installation In Industrial Plant

CLEVELAND—J. P. Simons, plant engineer of the Industrial Rayon Corp. here, which recently installed 32 Westinghouse water coolers in its plant, cites the following reasons for the installations of the electrically refrigerated systems:

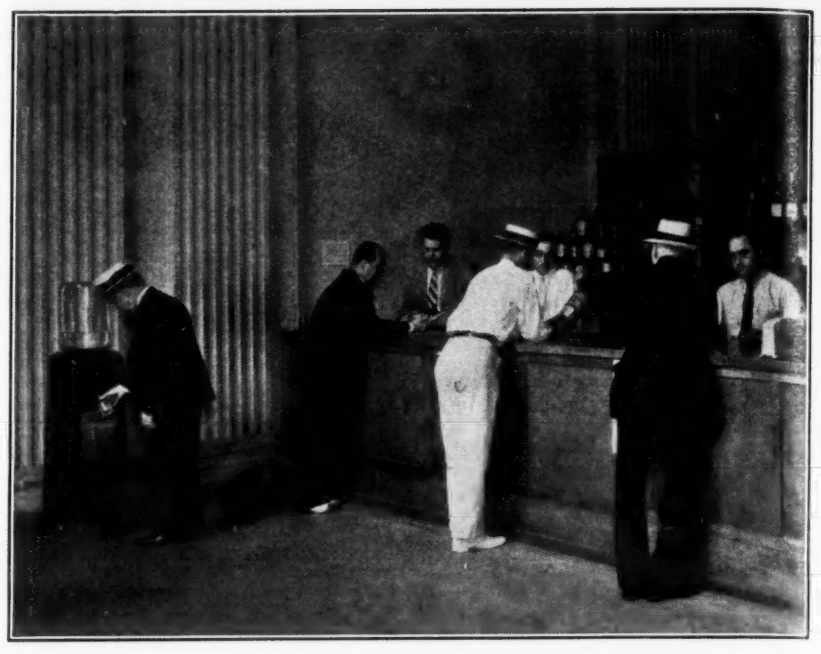
Convenience. There is no muss or slop on the floor about the fountains, and the cabinets are attractive in appearance.

Economy. Non-electrically refrigerated fountains require daily service. Daily operating cost is small.

Temperature control. The problem of having the water too cold at one time and too warm at another is eliminated. Also, by adjusting the temperature control the user can vary the temperature of the water to meet certain conditions.

Health. Electrically refrigerated water coolers provide water that is at the most healthful temperature.

Cold Water for Liquor Store Patrons



Customers who get thirsty in Pennsylvania liquor stores can refresh themselves at Kelvinator water coolers, as shown above.

New Commercial System Costs $2,000 Less to Operate Per Year

NEW YORK CITY—An elaborate refrigerating system employed in the extensive cafeteria service of the Young Men's Hebrew Association, Lexington Ave. and 92nd St. here, was replaced recently by an entirely simplified installation of modern equipment.

The new equipment, which is operated by two refrigerating machine units, does the job of the former system, costing a total of $3,515 a year for operation alone, or a savings of more than $2,000 annually. This savings, estimated by the association's engineers, is expected to pay for the complete installation within a year and a half.

Servel commercial refrigeration units are installed for three walk-in storage refrigerators, two salad pans, carbonated compartment in the soda fountain, and a circulating ice water system.

One commercial refrigerating unit operates one 6 ft. 7 in. x 6 ft. 4 in. x 8 ft. vegetable storage refrigerator at a maintained temperature of 40 to 45° F.; two 6 ft. 2 in. x 6 ft. 7 in. x 8 ft. dairy and meat storage refrigerators at a maintained temperature of 38 to 40° F.; and two 4 ft. x 2 ft. x 9 in. salad pans and the soda fountain.

Another machine unit operates the 150-gal. Filtrine tank, supplying 60 gals. per hour of ice water at 30° F. for the circulating system extending from the sub-basement to the 12th floor and including ice water outlets in the restaurant and a branch line tying in with the carbonator.

The walk-in refrigerators are equipped with Servel Humidrafts.

Water Cooler Operated By Photo-Electric Cell

DETROIT—A General Electric PB-3 pressure-type electrically refrigerated water cooler operated by a photoelectric cell has been installed in the Center theater, Detroit's newest small, modern motion picture house located on Woodward Ave. near Grand Blvd.

The installation was made by Caswell, Inc., Michigan G-E distributor, with R. E. Werner, commercial salesman, making the sale.

A beam of light from a lighting cove in the ceiling plays upon the cell which is located in a metal case on the floor under the water cooler. When a thirsty patron bends over to get a drink, he breaks the beam of light and the bubbler operates.

Water Coolers Sold To State Liquor Stores

PHILADELPHIA—A contract that may total 400 Kelvinator water coolers has been awarded Raymond Rosen & Co., local Kelvinator distributor, by the State of Pennsylvania. The coolers are being installed in all liquor stores throughout the state.

All of the first shipment of 111 coolers received here from Kelvinator's Detroit factory have been put in operation in the state liquor dispensing establishments in and about Philadelphia.

The coolers specified in the contract are all of the bottle type, with condensing units driven by ½-hp. motors.

Water Cooler Helps to Draw Theater Crowds

DAYTON—J. Elmer Redelle, veteran manager of the Victory theater here, believes that the large double-bubbler Frigidaire water cooler in the foyer, with a white marble background, is one of the reasons for the steady patronage that his theater draws.

"Theater-goers consider the physical aspect of a theater as well as they do the offering on the stage or screen," declares Mr. Redelle. "With entertainment features equal, the theater that is well equipped to provide for the comfort of its patrons will draw a larger crowd than the theater that is not so well equipped.

"We have found that people coming off the street on a warm day thoroughly enjoy a drink from the water cooler. Those who are our regular patrons invariably stop at our Frigidaire cooler as they enter before going to their seats."

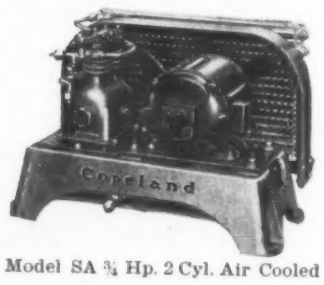
Two Universities Buy Taylor Freezers

BELOIT, Wis.—International House at the University of Chicago and the University of Wisconsin are two institutions which have purchased Taylor counter-type ice cream freezers.

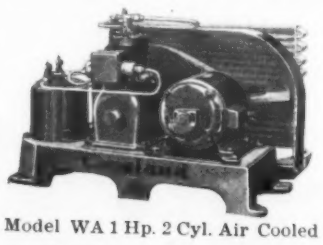
The installation at International House consists of a 5-gal. Taylor freezer together with a 60-gal. mix and hardening cabinet. This job was sold by A. J. Schumacher, Chicago representative.

The University of Wisconsin is using a 3-gal. Taylor freezer.

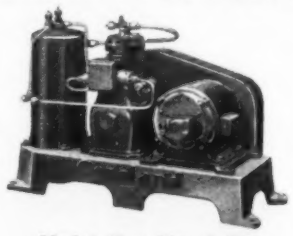
Bread and Butter



Model SA ¾ Hp. 2 Cyl. Air Cooled



Model WA 1 Hp. 2 Cyl. Air Cooled



Model X 1 Hp. 2 Cyl.
V 1½ Hp. 2 Cyl.

That's what Commercial Refrigeration means to the distributor—Day in and Day out—all thru the year—sales of equipment are being made to stores, meat markets, florists, cafes, restaurants, dairies, hotels, apartments.

The season does not matter much, in fact, Fall and Winter Sales of Commercial Units are often in excess of Summer volume, because the customer has the necessary time for remodelling.

Copeland Commercial Condensing Units are built in 21 distinct sizes, suitable for every requirement of automatic refrigeration. They are well and favorably known as completely dependable, efficient and economical.

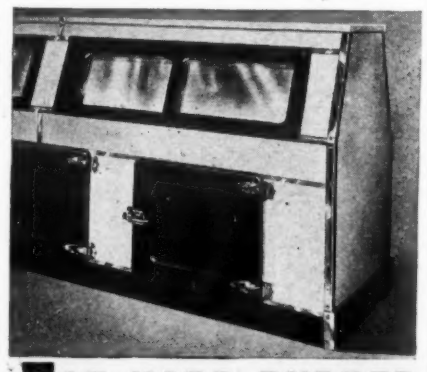
Now is a good time to look into the Commercial side; get the latest Copeland Commercial booklet; investigate the profit possibilities and the all-year demand for commercial equipment.

Write, right now, for full particulars.

COPELAND REFRIGERATION CORP., Mount Clemens, Mich.
Division of Winslow-Baker-Meyering Corp.

Copeland
DEPENDABLE ELECTRIC REFRIGERATION

TEMPRITE
Instantaneous Cooling
"The leading cooler for water, beer and other beverages"
Write for Catalog
Temprite Products Corporation
(Formerly Liquid Cooler Corporation)
1349 Milwaukee East :: Detroit



ACE HARD RUBBER
Hinged and Sliding
REFRIGERATOR DOORS
Door Frames, Slide Rails, Jambs, Glazing Strips, etc. Standard and special sizes.
Send for catalogue and prices
AMERICAN HARD RUBBER CO.
11 MERCER ST., NEW YORK, N. Y.
Akron, Ohio
111 W. Washington St., Chicago, Ill.

The IDEAL Refrigerant
- Non-Corrosive
- Economical
- Efficient
- Steady Temperature Control
- Low Acid and Moisture
- Easy to Service

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REG. U. S. PAT. OFF.
(DU PONT METHYL CHLORIDE)
Adequate stocks assure prompt shipment

Write for technical book and service manual
R-H Chemicals
The R. & H. Chemicals Dept.
E. I. du Pont de Nemours & Co., Inc.
Wilmington, Delaware
District Sales Offices:
Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco

Dept. Store Promotes Refrigerator Sales with 'After-Hours' Display

HOUSTON, Tex.—A special refrigerator display at the one corner of Munn's department store here accounts for at least 30 refrigerator sales annually, besides making some contacts that later develop into sales for the appliance department.

The refrigeration display occupies a relatively small space in one corner of the building on the ground floor. At this particular corner of the building, there is an entrance from two streets. A sliding system of doors has been run diagonally across this corner, making it possible to shut off the store and leave a triangular space on the corner with two openings on the streets.

An average of five electric refrigerators are kept on display in this small entrance space at all times. During the period from 7:30 a. m. to 9 a. m. each morning, the man who is to be on the floor in the refrigeration department is in this special triangular display space to take care of any refrigerator prospects.

The store opens at 9 a. m. so the man then also works the regular floor stock which is displayed just to the one side of the store entrance at this corner . . . the main entrance to the store is on an opposite street, and entrances are available from four streets.

During the days when the store closes at 6 p. m., one of the refrigeration salesmen takes charge of the entrance display in the triangular space and keeps this space open until 9 p. m. This display space is kept open during the winter months during fair weather, and from March 15 on through the refrigeration season, it is kept open each night.

J. H. Gouldy, manager of this refrigeration department, explains:

"This special display gains many worth while contacts for us. Some early morning contacts are made by the floor man for the day before the regular department in the store is opened. Then at night when one of the men comes from his outside work to take charge of the display, other contacts are made.

"We can trace about 30 sales a year to this display—one thing we notice is the select type of prospects that we contact in the special display. Only couples who are actually interested stop in to inspect the stocks, for many people are downtown at this time going to the shows or window shopping.

"A number of customers are closed at the time, but others prefer to come to the department the following day to close the purchase . . . at other times, some good prospects are contacted here at night that are not sold refrigerators, but from the contact, we learn that they are interested in electric washers or ironers and a salesman is sent to follow up the lead."

Mr. Gouldy works seven refrigerator salesmen, five of them work the year around. All men work on a straight commission—several of these salesmen sell more than 100 refrigerators a year, selling 18 to 25 per month during the heavy months. It is a policy of this department manager to keep only salesmen selling as many as 90 units a year, as he finds it unprofitable to have salesmen selling fewer than this number of refrigerators.

The average unit price of refrigerators sold by this firm is slightly above $250—for 70 per cent of the units are for $275; only 2 per cent are refrigerators selling above $275, and the other 28 per cent are for units selling below this figure.

"My men are producers," declares Mr. Gouldy, "because they are trained to sell refrigerators instead of being technicians. I constantly warn them against being too technical in their selling appeals.

"The man who digs into all the mechanism of a refrigerator talks all around a sale, but seldom closes one. The salesman who is enthusiastic about his company and the line that he sells is so confident that this line is about the best that he does not concern himself with mechanical details—he is interested in selling results to be obtained and takes it for granted that the manufacturer has made the best unit possible.

"I got my first lesson in salesmanship some years ago when looking for an automobile. I visited several dealers—one salesman went under the hood and gave me a long song and dance about his car. He picked up an oblong shiny piece of steel or something and layed it in my hand to exclaim, 'Isn't it a beauty!' I managed to stammer, 'Yes; but what is it?'

"The car I finally bought just happened to be a Chrysler. The salesman never lifted the hood. He showed me how it performed; he told me about Walter Chrysler. I was so thoroughly convinced by him that Walter Chrysler was the greatest automobile engineer in the world, I never once questioned the mechanism of any product he might make. I have adopted that policy in my own selling—I train my men to sell on this basis, and I find it pays."

This department head works with his men personally to help them close. He says:

"Some men are closers, others can lead up to a sale but cannot close. I assist the men to close outside; but find it a poor policy to help the man on the floor unless the sale has progressed to the point of discussing the terms, etc.

"For this reason, I have a policy of requiring any salesman to make a sale within the past two weeks before he is allowed a day on the sales floor. If he makes no outside sale, he does not get a day in the department until he scores, for a poor closer on the floor loses business for the department."

Kelvinator Survives after Being Blown ¼ Mile

TULSA, Okla.—Hurled to earth after having been carried a quarter of a mile on the wings of the fatal tornado that devastated the Alsuma district on May 4, a Kelvinator refrigerator was found practically unharmed by its owner, Peter Wilson, operator of a gasoline station near here.

The Kelvinator had been installed in a two-story combination residence and filling station occupied by the Wilson family. Wilson, warned of the approach of the funnel-shaped cloud, was faced with a choice between taking his chances with the storm or crawling into a culvert filled with muddy water. He waited until he was sure that the twister was coming his way, and then took to the culvert.

When he emerged his home and filling station were gone. Only two battered gasoline pumps marked the spot the building had occupied.

The roaring wind dropped the Kelvinator a quarter of a mile away. Although the door had been torn from its hinges, the cabinet was in perfect alignment, and the door was readily fitted into place. The compressor was hanging outside the box, but the gas line was not even broken. A small chip in the porcelain was the total interior damage.

Chicago Furniture Shows Will Open Jan. 7

CHICAGO — Chicago's mid-winter furniture shows will open Jan. 7, 1935, it was announced last week by the American Furniture Mart and the furniture division of the Merchandise Mart.

Miss Stewart to Help Athens Housewives

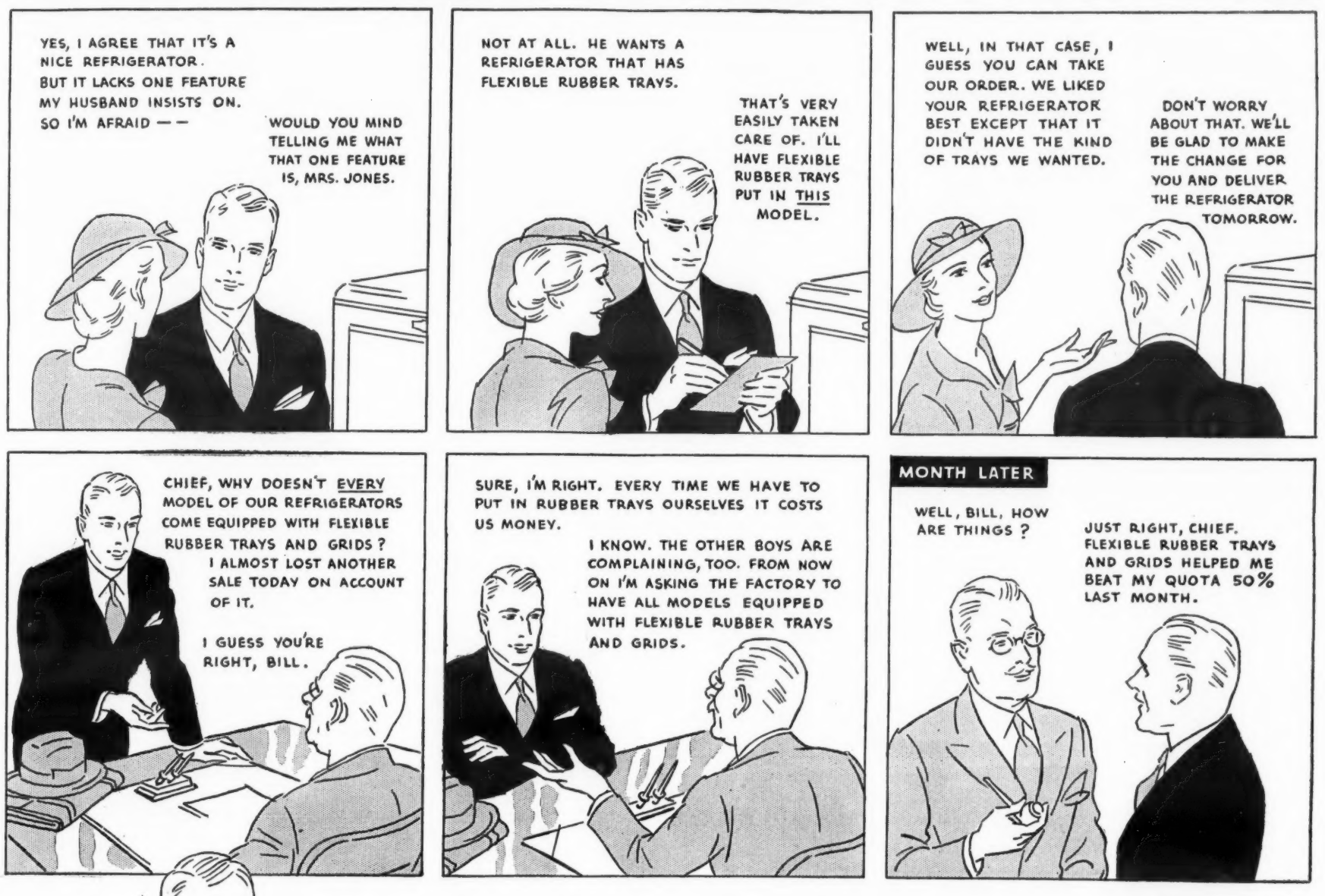
CHATTANOOGA, Tenn.—Appointment of Miss Odelle Stewart, Alabama home economics worker, to direct the Electric Home & Farm Authority's program of cooperation with home makers at Athens, Ala., was announced recently.

Athens is the first Alabama municipality to distribute TVA power at TVA rates, and to be authorized for EH & FA financing of retail sales of approved electrical appliances.

Miss Stewart is a native of Weogufka, Ala. She attended Alabama College in 1926 and 1927, and graduated at Alabama Polytechnic Institute in 1929.

Miss Stewart was employed at Birmingham successively by an electric refrigerator manufacturer, a refrigerator distributor, and a utility.

MEET THE NEW QUOTA BUSTER


YES, I AGREE THAT IT'S A NICE REFRIGERATOR. BUT IT LACKS ONE FEATURE MY HUSBAND INSISTS ON. SO I'M AFRAID — —
WOULD YOU MIND TELLING ME WHAT THAT ONE FEATURE IS, MRS. JONES.
NOT AT ALL. HE WANTS A REFRIGERATOR THAT HAS FLEXIBLE RUBBER TRAYS.
THAT'S VERY EASILY TAKEN CARE OF. I'LL HAVE FLEXIBLE RUBBER TRAYS PUT IN THIS MODEL.
WELL, IN THAT CASE, I GUESS YOU CAN TAKE OUR ORDER. WE LIKED YOUR REFRIGERATOR BEST EXCEPT THAT IT DIDN'T HAVE THE KIND OF TRAYS WE WANTED.
DON'T WORRY ABOUT THAT. WE'LL BE GLAD TO MAKE THE CHANGE FOR YOU AND DELIVER THE REFRIGERATOR TOMORROW.
CHIEF, WHY DOESN'T EVERY MODEL OF OUR REFRIGERATORS COME EQUIPPED WITH FLEXIBLE RUBBER TRAYS AND GRIDS? I ALMOST LOST ANOTHER SALE TODAY ON ACCOUNT OF IT.
I GUESS YOU'RE RIGHT, BILL.
SURE, I'M RIGHT. EVERY TIME WE HAVE TO PUT IN RUBBER TRAYS OURSELVES IT COSTS US MONEY.
I KNOW. THE OTHER BOYS ARE COMPLAINING, TOO. FROM NOW ON I'M ASKING THE FACTORY TO HAVE ALL MODELS EQUIPPED WITH FLEXIBLE RUBBER TRAYS AND GRIDS.
MONTH LATER
WELL, BILL, HOW ARE THINGS?
JUST RIGHT, CHIEF. FLEXIBLE RUBBER TRAYS AND GRIDS HELPED ME BEAT MY QUOTA 50% LAST MONTH.

INSIST

It will pay you to insist that Flexible Rubber Trays and Grids be included as standard equipment in every model *of the refrigerator you sell. By so insisting, you'll sell* more *refrigerators—and sell them easier.*

Don't put the Brakes on Sales— SPEED--THEM--UP!

Trying to sell refrigerators that aren't equipped with Flexible Rubber Trays and Grids is almost as bad as trying to sell automobiles that haven't 4-wheel brakes. It isn't being done now by the most successful operators.

The reason is that you can't really call a refrigerator modern unless it IS equipped with these trouble, time and temper savers. And anything out of date is ten times harder to sell than something that's up-to-the-minute.

Just note a couple of facts that indicate the amazing popularity of Flexible Rubber Trays and Grids.

1. More than 3,000,000 now in use.
2. Sales up 317% since 1930.
3. More than a million sold last year alone, and sales are now over $250,000 a month.

That means demand. And it explains why 90% of all refrigerators being made in 1934 are equipped with Flexible Rubber Trays and Grids.

And here's something else. All through the summer, Inland advertisements — 278,000,000 of them — will appear in leading National Magazines. Thus we propose to increase still further the amazing demand for Flexible Rubber Trays and Grids.

So if you want to see sales go up, be sure *every model* of the refrigerators come to you with Flexible Rubber Trays and Grids as standard equipment. You can get full details by writing to the manufacturer of your refrigerator—or direct to us.

THE INLAND MANUFACTURING COMPANY, DAYTON, OHIO

Flexible Rubber Trays and Grids

ICE CUBES . . . INSTANTLY . . . TRAY TO GLASS

WATER COOLING

Properly Cooled Water Important To Public's Health

By the Westinghouse Refrigeration Engineering Staff

JOHN HARVEY KELLOGG, M.D., LL.D., M.A.C.S., head of the Battle Creek sanitarium, and author of the scientific treatise "Rational Hydrotherapy" says, "Most people drink far too little water. They would be greatly benefitted if they drank three times as much water outside of meals. Many do not drink at all except at meals which is a grave mistake." Water serves five distinct purposes in building and maintaining in good order all body structures.

Water provides two-thirds of the weight of the human body and is part of our body structure. Our foods supply only about four glasses of water each day and with from ten to twelve glasses of water passing off from the body daily through the skin, kidneys, bowels and other channels, it is necessary that this water be made up in some other manner.

A great many physicians and health authorities, therefore, recommend that each person drink from six to ten glasses of water daily. Our natural thirst demands about three glasses. Therefore, we should add from three to seven glasses by the power of suggestion, appetizing water temperature, or by adequate distribution of efficient water coolers to keep the subject of water drinking before the mind of the average person.

The second requirement is for the aid of proper digestion. Water stimulates the flow of gastric juices in the stomach and thereby helps in digesting food.

Water has an important function in the proper elimination of waste matters by cleansing the internal system and preventing the system from becoming clogged. It prevents the accumulation of poisons in such quantities as would cause illness.

An important function of water is as a lubricant to the body, supplying liquid to the bones, heart and lungs and to add to the red blood corpuscles which feed the various parts of the body.

With sufficient water in the body, perspiration is a natural function. This moisture gathering on the outside of the body at the pores evaporates in the presence of heat and dissipates the heat into the surrounding atmosphere. This heat comes from the body, therefore each small pore in dissipating some heat reduces the temperature of the body—providing a lower temperature.

The accompanying table gives the water requirements for various applications and living and working conditions. This differs relatively according to geographic location. The dividing line is the Mason-Dixon line separating the north from the south in the United States. Inasmuch as the throat of the body reacts most favorably to 50° water you will note under ordinary living and working conditions that 50° water temperature is recommended by Westinghouse.

Abnormal working conditions such as heavy manufacturing, large shops, foundrys, annealing plants, and locations where excessive perspiration is esential for the workers' welfare, a warmer water is recommended in order to prevent the natural body reaction against chilled water.

By mechanically refrigerated and electrically controlled temperature the danger from cramps and stomach disorders is practically eliminated by preventing the worker at hard labor from drinking water which has been cooled too much, thus avoiding the natural shock to the nervous system by drinking water known as "ice water."

An electrically controlled water cooler is finding its place in the modern home. The recreation room where gymnastic games are played as well as the fatiguing action of Ping Pong and other fast and exciting games require properly chilled water for body comfort. With the use of the water cooler the ice cubes for drinking water are eliminated.

Although ice cubes satisfy, the actual temperature of the water is in no way regulated and often permitted to fall far below the natural temperature of 50° F.

Some modern homes located in the more torrid regions are originally piped with cork-insulated lines leading from a remote position of the water-cooling cabinet to the buffet chilled water faucet or to the bathroom, permitting chilled water to be mixed with city water for colder showers or to be drawn directly from the tap for internal consumption. Remote lines of this sort for internal consumption especially should be limited to 15 feet of cork insulated, small-diameter supply lines to prevent the accumulation of water which readily warms when subjected to high surrounding air temperatures.

The home water cooler can be equipped with a thermos bottle filler to supply water to more remote parts of the house, for use in the bedrooms, for visitors, or in cases of sickness.

The accompanying photograph shows the Westinghouse Model MT-8 installed in the recreation room of the Westinghouse Home of Tomorrow in Mansfield, Ohio. This cooler provides drinking water for an average of 3,000 people per week, or a maximum of 700 people during any week-end afternoon visitors' day.

In the ever-constant drive for better health, employers are looking towards water coolers to provide healthy, happy, contented workers. The employer is benefited in several ways by the installation of electric water coolers.

Frequent drinking of water overcomes fatigue and sluggishness. With the temperatures in offices around 95° F. and the usual poor circulation of air, the workers become tired and mentally dull and sluggish. A generous drink of 50° thermostatically controlled water will serve as a tonic to eliminate the dullness of the mind and create energy.

Drinking of water prevents mistakes due to mental sluggishness. Millions of dollars are spent every year to prevent and correct mistakes made by employes who are not mentally alert during the days of heavy humidity and improperly ventilated offices.

A drinking fountain should be installed in a visible spot or conspicuous location convenient to the employes, either by passing along an aisle, or, in a hallway, or adjacent to the location of several desks.

With the Westinghouse type of electric coolers which may be had either as unit systems or remote control systems, a cooler may be located at one point with a remote line, not to exceed 15 feet of cork-insulated small-size galvanized-iron or brass pipe, leading to a remote bubbler.

A typical New York installation of a Westinghouse MT-12 water cooler is in a corridor near the reception room and adjacent to the general office where a great amount of traffic passes by. From the back of the cooler a cork-insulated line runs through the wall to supply a bubbler for a general office force. In this way this cooler serves the general traffic in the corridor as well as the employes in the general office.

On this particular problem the city water temperature was 70° F., and it is desired to furnish 50° water at the fountain and at the remote bubbler. There is only three feet of cork-insulated line between the cooling unit and the remote bubbler and with the demand on a remote bubbler being relatively high, a very small drop in temperature exists between the stainless steel cooling tank and the angle jet bubbler.

The average maximum room temperature surrounding the cooler and bubbler is 80° F. There are 42 people in the general office supplied by the remote bubbler and in the two offices, one on each side of the corridor, are 75 additional people. Under maximum circumstances, it is possible that there would be 100 transients per hour in the reception room who would have access to the water cooler.

The water cooler in the corridor is supplied with a pre-cooler which utilizes the waste water from the bubbler to pre-cool the incoming city water at 70° F. before it comes in contact with the refrigerating coils in the stainless steel cooling chamber. The water supplied to the remote bubbler, however, does not come in contact with the pre-cooler and all the heat removed from this water delivered at the bubbler must be cooled by the refrigerating machine.

From the table it is seen that "office" applications with bubbler service using water at 50° have a demand of .1 of a gallon per hour per person for territory north of the Mason-Dixon Line.

Therefore, with 42 people, the amount of water to be served would be 4.2 gallons of water per hour, cooled from 70 to 50° F. 75 people in the office doing general office work will need 7½ gallons of water per hour, and according to the table, 100 transients have a demand of one gallon of water per hour.

A great many offices are so laid out that it is impossible to use a remote bubbler with a water cooler, due to the physical dimensions of the room or offices. It is also found objectionable sometimes to use a circulating water system, therefore, the individual self-contained water cooler of modern design and appearance with capacities ranging from 4 to 11 gallons of water per hour and a 30° drop in temperature in an 80° room are available and the exact selection of which depends upon the number of people to be served.

With the individual water cooler, they can be placed in a visible and conspicuous spot to insure against employes visiting and wasting time while securing a drink. Install an ample number of coolers so that unnecessary time is not consumed in traveling to and from the water cooler.

For industrial applications there are two general forms of water coolers. One for human consumption, the other for mechanical applications. Factory water coolers for internal consumption are available in individual units, dead end remote bubbler applications, multiple applications, using one condensing unit remotely installed with individual lines running to each cooler, a single pipe circulating system, or the common loop system.

There are a great many factories at the present time equipped with the insulated shell type water cooler about 24 in. in diameter and 32 in. high equipped with a pedestal base, a porcelain slant jet bubbler and cooling coils wrapped around the inside of the tank.

These water coolers, until the importance of positive temperature control was brought to the minds of the employes, used ice for cooling the water. As long as the ice supply lasted cold water was available, but these were usually iced in the morning and only once a day, and the time of day when the water was most needed, between two and three in the afternoon, the ice supply had become exhausted and the drinking water, unpalatable.

Such a problem existed in a small central Ohio manufacturing plant employing 103 people, located on one floor where the maximum room temperature was 80° F., tap water temperature 70° F. and the desired drinking water temperature 50° F.

The floor was divided into three sections. Carpenter shops employing 70 people were equipped with two insulated steel tank type water coolers and beyond the fire wall a paint shop employing 40 people used one tank type bottle cooler. Beyond the second fire wall the crating room and shipping room, employing 13 people was also provided with one pedestal tank type cooler.

From the table, light manufacturing, north of the Mason-Dixon Line, demands .08 gallons per hour per person. Therefore, the load is as follows:

Assembly shop: 70x.08=5.60 gallons of water per hour.

Paint shop: 40x.08=3.20 gallons of water per hour.

Crating and shipping rooms: 13x .08=1.04 gallons of water per hour or a total 9.84 gallons of water per hour to be cooled from 70 to 50°.

An interesting application of industrial water cooling is the installation at the Sypho Springs Water Co. in the accompanying photograph. The increased demand for seltzer water has proven an asset to the Sypho Spring Water Co. of Raytown, Mo., whose spring water has a high degree of natural carbonation, but for commercial applications it is necessary that it be further impregnated with carbon dioxide gas.

The company first passed the water through an efficient filtering system then into two 185-gallon galvanized steel three inch hair-felt insulated water storage tanks. Each tank is equipped with galvanized steel evaporating coils each controlled with a separate thermostatic expansion valve passing back to a manifold valve connection on the gauge board above the Westinghouse condensing unit.

Water is drawn through the filter into first one tank where it is cooled by a Westinghouse hermetically sealed condensing unit to 41° F. and held at that point with an electrically controlled unit. At 41° F. the water absorbs the CO_2 gas much more readily and holds it in suspension, giving the highest degree of efficiency to the seltzer water.

While one tank is being cooled the other is being emptied to the carbonating machine and this continues until the desired amount of carbonated water is produced daily.

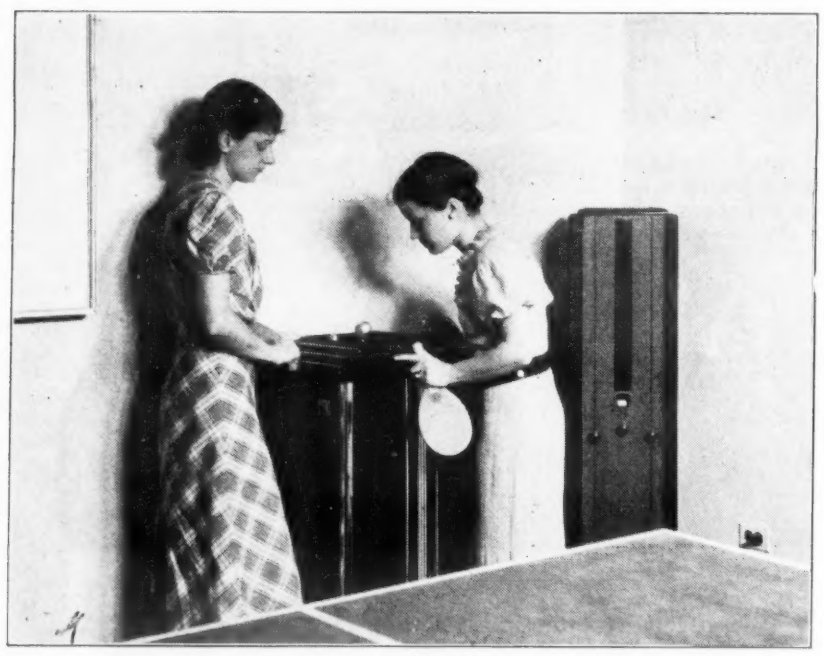
In this manner a small investment in equipment provides a profitable and labor saving business.

Water Requirements for Various Applications

Application	Water Outlet	Water Temperature	North: Gallons Per Hour Per Person	South: Gallons Per Hour Per Person
Garages, Filling Stations	Bubbler	50°	.08	.17
Retail Stores	Bubbler	50°	.08—1 gal. per 100 Transients	.17—1 gal. per 100 Transients
Offices	Cup	50°	.06	.08
Offices	Bubbler	50°	.10	.125
Transients	Bubbler	50°	1.00 gal. per 100 Transients	1.00 gal. per 100 Transients
Schools	Bubbler	50-55°	.10	.125
Hospitals*		45-50°	.10 per bed Maximum 1.5 gal. per bed per day	.125 per bed Maximum 1.5 gal. per bed per day
Hotels†	Bubbler	45-50°	.10 per room Maximum 1.5 gal. per room per day	.125 per room Maximum 1.5 gal. per room per day
Cafeterias—Self-Serve†	Glass filling	45-50°	.08	.10
Restaurants—Table Service†	Glass filling	45-50°	.10	.125
Manufacturing—Heavy Service	Bubbler	50-55°	.20	.25
Manufacturing—Light Service	Bubbler	50-55°	.08	.17
Apartments	Bubbler	50°	.08	.10
Homes		50°	1.00 per day	1.5 per day
Banks	Bubbler	50°	.10—1 gal. per 100 Transients	.125—1 gal. per 100 Transients
Department Stores	Bubbler	50°	.08—1 gal. per 100 Transients	.10—1 gal. per 100 Transients
Theaters	Bubbler	50°	4.00 per 1,000 seats	6.00 per 1,000 seats

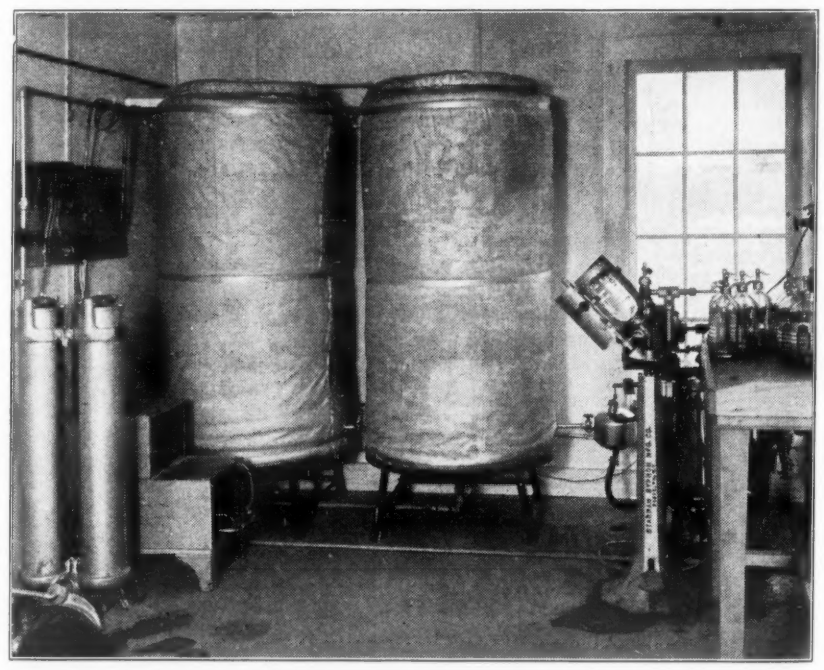
*This rating includes doctors', nurses', and attendants' requirements.
†Care should be exercised to take care of peak loads. Figure maximum service for peak loads for a period of two hours.

In the Recreation Room



This Westinghouse self-contained cooler in modernistic design finds an application in the recreation room of a modern home.

Refrigeration in Seltzer Water Plant



Westinghouse installation in Sypho Springs Water Co. plant, Raytown, Mo., serves to cool the water to a point where it absorbs CO-2 gas readily.

DETROIT LUBRICATOR COMPANY
TRUMBULL, LINCOLN, MARQUETTE & VIADUCT
DETROIT, MICH.

Manufacturers of "Genuine Detroit" Automatic and Thermostatic Expansion Valves, American Cube-makers, American Refrigeration Sections, Automatic Controls for Temperature and Pressure, Electric Valves for Refrigerant and Water Control, Thermostats, Humidistats and complete controls for Air Conditioning.
Descriptive literature gladly sent upon request
Division of
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

ANSUL REFRIGERANTS

SULPHUR DIOXIDE
Pure and bone dry with its high quality protected by analysis of every cylinder.

METHYL CHLORIDE
Low moisture and acid content. Fast freezing, stable, non-corrosive.

ANSUL CHEMICAL CO. - MARINETTE, WISCONSIN

Text of Approved Amendments For Commercial Case Code

(Concluded from Page 1, Column 1)

of shipment is an instalment transaction, and shall be subject to all provisions governing instalment sales contained in this code.

The term "commercial refrigerator" is given a new definition under the code to make it include self-contained commercial cases and coolers (those equipped with electric refrigeration units.)

Manufacturers are barred from combining quotations for any commercial refrigerator product with a quotation on any other material or service with the intent of concealing the true selling price of the commercial refrigerator product.

Text of the approved amendments follows:

Amendments Nos. 2 to 6 Inclusive, No. 8 and Nos. 10 to 13 Inclusive, to Commercial Refrigerator Code
(As revised after Public Hearing on May 15, 1934).

2.

Amend Section 2 of Article II to read as follows:

"Section 2—The term 'Commercial Refrigerator' or 'product of the industry' as used herein is defined to mean and include any insulated room, box, chest, cabinet, display case or counter (but not part of the fixed construction) equipped with or for any form of refrigeration or equipped with or for any type of refrigerating unit or agent, for the storage and/or display of perishable food or other products under refrigeration, in meat markets, grocery and delicatessen stores, florists' shops, hotels, restaurants, clubs, institutions, and such similar establishments where such food or other products are retained or stored for the purpose of sale or service."

3.

Amend Section 6 of Article IV to read as follows:

"Section 6.—Evasion through Re-employment. No employee now employed at a rate in excess of the minimum shall be discharged and re-employed or replaced by another at a lower rate for the purpose of evading provisions of this Code."

4.

Add to Article V the following:

"Section 8.—Operations Performed by Members. All members of the industry shall comply with all provisions relating to hours in this Code, in the performance by them, him or her of manual labor operations."

5.

Add to Article V the following:

"Section 9. *Contracting for Labor Services.* No member of the industry shall sublet (whether by the practice known as 'lumping' of labor or otherwise) or contract any labor service to any employee or employees."

6.

Omit Section 8 of Article VI. Renumber original Section 9 and 10 to read Sections 8 and 9 respectively and add to Article VI sub-paragraph (i) of Section 9 and new Sections 10 and 11 as follows:

(i) It being found necessary, in order to support the administration of this Code and to maintain the standards of fair competition established hereunder and to effectuate the policy of the Act, the Code Authority is authorized:

(aa) To incur such reasonable obligations as are necessary and proper for the foregoing purposes and to meet such obligations out of funds which may be raised as hereinafter provided and which shall be held in trust for the purpose of the Code;

(bb) To submit to the Administrator for his approval, subject to such notice and opportunity to be heard as he may deem necessary, (1) an itemized budget of its estimated expenses for the foregoing purposes, and (2) an equitable basis upon which the funds necessary to support such budget shall be contributed by members of the industry;

(cc) After such budget and basis of contribution have been approved by the Administrator, to determine and obtain equitable contributions as above set forth by all members of the industry, and to that end, if necessary to institute legal proceedings therefor in its own name.

"Section 10. Each member of the industry shall pay his or its equitable contribution to the expenses of the maintenance of the Code Authority, determined as herein provided, and subject to rules and regulations pertaining thereto issued by the Administrator. Failure on the part of a member of the industry to make such contribution shall be a violation of this Code. Only members of the industry complying with the Code and contributing to the expenses of its administration as herein provided, shall be entitled to participate in the selection of members of Code Authority or to receive the benefits of any of its voluntary activities, or to make use of any emblem or insignia of the National Recovery Administration.

"Section 11. The Code Authority shall neither incur nor pay any obligation in excess of the amount thereof as estimated in its approved budget, except upon approval of the Administrator first obtained; and no subsequent budget shall contain any deficiency item for expenditures in excess of prior budget estimates except those which the Administrator shall have so approved."

8.

Add to Article VII the following:

"Rule 17. No member of the industry shall combine quotations, contracts, invoices or receipts for any product of the industry with any quotation, contract, invoice or receipt for any other material, labor or service for the purpose and with the intent or effect of concealing the true selling price of the product of the industry."

10.

Add to Article VIII the following:

"Section 8. Any contract for the sale or transfer of any product of the industry which does not provide for payment in full within ninety (90) days after the date of shipment of such product sold is an instalment transaction, and shall be subject to all rules or provisions governing instalment sales contained in this Code."

11.

Amend Section I of Article VIII by deleting the word "consumer" in the ninth (9th) line, page 453 of the Code. (Typographical error in original draft of Code.)

12.

Amend Section 7 (b) of Article VIII to read:

"Cash amounting to at least 20 per cent (20%) of the net sales price to be paid on or prior to delivery to the purchaser."

13.

Amend Section 7 (c) of Article VIII to read:

"Balance due on any contract of sale to be paid in not more than twenty-four (24) months from date of shipment."

Budget Prepared for Administering Code

WASHINGTON, D. C.—The Code Authority for the commercial refrigerator industry has made application to the NRA for approval of its budget for, and of the basis of contribution by members of the industry to, the expense of administering the code of fair competition for the commercial refrigerator manufacturing industry for the period from Jan. 1, 1934, to Dec. 31, 1934.

Total amount of the budget for the said period is $27,350. The basis of contribution is as follows:

1. Assessment to be based on dollar volume of net sales, at the rate of three-tenths of 1 per cent thereof, payable monthly.

2. Minimum monthly fee of $5.

The Code Authority has also submitted an application for the termination of the exemption conferred in an Administrative Order whereby members of its industry whose principal line of business is embraced in a trade or industry subject to a code other than the code for the commercial refrigerator industry were exempted from obligation to contribute to the expense of code administration.

Frostoff Moves Offices To New York City

NEW YORK CITY—The Frostoff Co., Inc., manufacturer of automatic defrosting devices, has moved its offices from New Rochelle, N. Y., to 202 E. 43rd St. here.

7.5-Ton Compressor Cools Buffalo Cafe

BUFFALO—Carrier year-'round air-conditioning equipment has just been installed in the O'Day Grill of this city by the Cooney Refrigeration Co., Inc., distributor for Carrier air-conditioning equipment here.

Refrigeration equipment includes a 7½-ton methyl chloride machine serving refrigerant to a central cooling system operating from the basement to send conditioned air through a grille located at one extreme end of the 80 by 20 by 12-ft. restaurant. The unitary air outlet was adopted in order to preserve existing decorations of the room, states L. N. Reed, who supervised the installation for the distributorship.

Approximately 20,000 cu. ft. of space is conditioned by the system, a Carrier blower of 2,000 c.f.m. capacity being used to distribute the air. The installation is set to supply 50 per cent of fresh air. An indoor temperature of 78° F. is maintained in summer, with a relative humidity of 54 per cent.

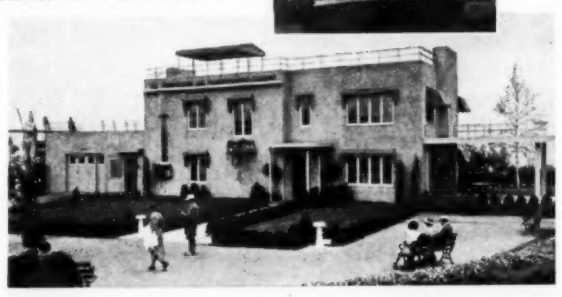
Duct work was installed by Rundell & Weigel, Buffalo contractors.

There's no place like (AN AIR-CONDITIONED) HOME

"FREON," *the safe refrigerant, keeps the family happy and healthy by providing a cool, invigorating atmosphere all year round!*

Whether it's blazing hot outside, or steaming sultry, the weather inside an air-conditioned house is always refreshingly cool and comfortable.

Residence of W. S. Shipley, York, Pa. Air-conditioned with "Freon" by York. →



Visit Frigidaire's house at the Century of Progress in Chicago. It is air-conditioned with "Freon."

THE air-conditioned home is no longer a dream of the future . . . it is a reality of today! Thousands of home-owners have already discovered for themselves the wonder of air-conditioning, its marvelous cooling comfort, its positive health-building power.

Air-conditioning in the home makes torrid, summer weather seem like mountain weather. It does more than that. It keeps the temperature comfortable *all year round*, distributes the air evenly, humidifies or dehumidifies it and purifies it by removing dust.

The refrigerant almost exclusively used for air-conditioning in homes is "Freon." This refrigerant is safe, non-poisonous, non-flammable, without odor. Even if the evaporator were punctured and "Freon" escaped, it would do no harm to any member of the family.

Every home offers an excellent opportunity for you to promote the sales of "Freon" especially for use in unit cooler equipment. There are also many other prospects in your city. Those who know refrigerants specify "Freon" for air-conditioning in hotels, apartments, theatres, office buildings—and for air-conditioning and refrigeration in household refrigerators, meat markets, delicatessens, florists' shops and countless other places.

FREON
REG. U. S. PAT. OFF.
a safe refrigerant
KINETIC

KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE

ELECTRIC
REFRIGERATION NEWS
Registered U. S. Patent Office
Copyright, 1934, by Business News Publishing Co.
Published Every Week by
BUSINESS NEWS PUBLISHING CO.
5229 Cass Ave., Detroit, Mich. Telephone Columbia 4242.
Production Dept., 550 Maccabees Bldg., Columbia 4245.

Subscription Rates—U. S. and Possessions and all countries in the Pan-American Postal Union: $3.00 per year; 2 years for $5.00. Canada: $6.00 per year (due to special tariff). All Other Countries: $5.00 per year (U. S. Money)

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VOL. 12, NO. 12, SERIAL NO. 278, JULY 18, 1934

Opportunity for Dealers In Housing Program

BLASTING at one of the key logs in the credit jam, the Administration is now offering inducements to banks to loosen up and make loans for new construction and renovation of old buildings through operation of the National Housing Act. Distributors and dealers may profit from the work of the new Federal Housing Administration in two ways: (1) Resulting increase of employment should add to prospect lists hundreds of thousands of workers with money in their pockets to spend for refrigerators; and (2) the market for all sorts of household appliances should be stimulated by the renovation campaign.

Neglect, decay, and obsolescence during the last three or four years—millions of buildings of all sorts have been moth-eaten because owners have not had money of their own and weren't able to borrow—have left the nation rather shoddy today; and many observers feel that when this new Federal project finally gets under way it will receive a better welcome from the country-at-large than most of the alphabet-labelled schemes which have emanated from the New Dealers.

Ballyhoo for the National Housing Act has already begun; and like all ballyhoo, it needs to be discounted. Public works programs are habitually slow in materializing. At best, the Administration can't hope to get its renovation program going before next fall, or its new building program before next year. The NHA should be reckoned with by distributors and dealers, however, in their long-range planning. It may be a decided factor in business during 1935.

Put briefly, the National Housing Act creates a fund of 200 million dollars to insure loans up to 20 per cent made by banks, trust companies, building and loan societies, and other recognized lending agencies for renovation of existing buildings. This renovation program is to be the first step.

After renovation comes reconstruction, and for new home building a billion dollars' worth of 20-year mortgages (with a limit of $16,000 each) will be mutually insured up to 80 per cent of their appraised value. Mortgages on existing homes are to be insured up to 60 per cent of their currently appraised value, and for this another billion dollars has been set aside.

National mortgage associations, each capitalized at five million dollars, will be set up with authority to buy and sell insured mortgages and issue obligations representing 10 times their capital stock. Further provisions of the program include the guarantee of building and loan association deposits up to $5,000, and a 50 per cent increase in the capitalization of the Home Owners' Loan Corp. for refinancing mortgages and repairing the property of existing homes.

Thus the component parts of this program include (1) repair and modernization of homes; (2) construction of new homes; (3) mortgage insurance; (4) insurance of building and loan associations; and (5) new mortgage associations. Private capital, which has been frightened into hiding by other activities of the Administration, will be wooed back into circulation by this Act, it is hoped. It is really more of a mortgage and loan stabilization act than it is a housing act.

Skeptics can point out that many home owners are already so debt-ridden it really is unlikely they will feel like borrowing more money at 5 or 6 percent (which the National Housing Act allows) when they are finding it difficult to carry the burdens of the present obligations. Moreover, canny householders have every reason to expect that harried city fathers will seize upon any property improvements as an excellent opportunity to collect more taxes. To still such objections, however, the NHA is launching a powerful publicity campaign.

What such a program might do for the now dormant construction industry is a matter for rather pleasant speculation. It has been estimated that of the nine million unemployed men in the country, some three million belong to the construction industry, and that at least three million more are connected with industries which supply materials to the construction industry. The most optimistic of the New Dealers hope that execution of the National Housing Act will put 5,000,000 men back to work, which is undoubtedly an exaggeration. But if only 2,000,000 of the unemployed begin earning wages again, the effect on the business of distributors and dealers seems sure to be felt.

The President's Durable Goods Industries Committee has estimated that the initial modernization campaign should develop a volume of business amounting to $1,500,000,000 before the end of next year, with not more than $500,000,000 of this staggering sum to be financed in instalments. If the loss sustained by government backing of local banks comes to 5 per cent—which the committee considers high—then the government's expenditure in this project would amount to only $25,000,000. When compared with the huge amounts spent by CWA last spring, or to the imagination-defying sums poured out by the government into direct relief, this expenditure seems fairly reasonable.

To make the program really effective, however, something must be done about the costs of both labor and material. The Dow Service estimates that a home on which labor and material costs amounted to $5,000 in 1926 could be built for $2,560 in April, 1933,—or one-half the 1926 costs. Since that time, however, prices have risen sharply (the construction industry blames these rising prices onto the NRA codes). By January, 1934, the cost of our hypothetical home had risen (again according to the Dow Service) to $4,675—almost back to the 1926 price. Some materials, such as cement, lime, sand, gravel, lumber, are even above the 1926 levels. So are rates for skilled labor.

Secretary of Labor Frances Perkins, however, is reported to be suggesting to the unions that it might be advisable to lower existing rates for skilled labor in the construction industries, using as her basic argument the proposition that lower rates may mean steady employment and greater incomes.

James A. Moffett (who was vice president of the Standard Oil Co. of New Jersey until he assumed his duties as leader of the National Housing Act forces) and Administrator Harry Hopkins are said to be negotiating with General Johnson, the Blue Eagle sales manager, to revise construction industry codes so that lower prices for materials may obtain—on the assumption that the increased business resulting should more than offset the difference in prices.

Distributors and dealers of household appliances should see in this new program a movement which may be right up their alley. How better can one modernize a home than by putting in an all-electric kitchen, or installing air conditioning? All the new homes which may be constructed with the help of this plan should, of course, be air conditioned; and many of them may contain modern kitchens, too.

One tip for refrigeration distributors and dealers is that they might profit by the addition of other lines of products for the home, such as air-conditioning equipment, oil burners and oil furnaces, laundry equipment, dishwashers, metal sinks, and the like. If home building is to enjoy a boom in 1935, the alert distributor or dealer should be able to sell not one, but several, products to each of the new home owners with which he makes a successful contact.

LETTERS

A Subscriber Turns Proofreader and Finds Some Errors

Refrigerator Association of New York, Inc.
60 E. 42nd St., New York City
July 9, 1934.

Staff Writer:

We are always glad to give your publication any of the latest news relative to developments affecting the industry in this area. However, it is imperative that the information contained is correct, for it is apt to give the wrong impression of what we are doing or what can be done, as illustrated in the case of the article "Water Cooler Division Formed by New York Refrigerator Group," in your July 4 issue, page 9, first paragraph under heading, "Sales Contracts."

It should read, "When refrigerators are sold to an apartment house where a rent assignment exists and the institution holding the rent assignment is in rehabilitation," then continue. In the second paragraph, "upon termination of the rent assignment, and the original owner is in possession," then continue. In the first paragraph under "10 or 15 per cent down" the last word instead of "title" should be "assignment."

This is merely to point out the necessity for a proof reading job of the phraseology used. As a further example, in the second paragraph, third line, the last word "assign" should be "consign," also, in the case of the beginning of the article on page 1, it should read, "When E. B. Latham & Co., Leonard distributors, and Crosley Distributing Corp., factory branch, come into the Refrigerator Association." I mentioned to you that both of these companies were to come in the last week in June.

It is needless to say that we are more than anxious to cooperate in giving news, as our main objective is the good of the industry and if we can contribute anything we are happy. May I suggest that hereafter I have an opportunity to read proof on any news coming from this office unless the news emanates from this office in typewritten form. I believe this will insure the publishing of correct information and save you the trouble of speculating concerning the phraseology used.

ARTHUR F. CALLAHAN,
Managing director.

Answer: We greatly regret the error and will try to be more careful in the future. It is seldom practical for us to submit news copy for approval. It should not be necessary in the case of material written by members of our own staff. Our general policy has been to avoid any situation which would make us dependent upon outsiders for approval of material published in ELECTRIC REFRIGERATION NEWS. While occasional errors might be avoided by more consultation, we have found that there is a very definite tendency on the part of advisors to eliminate vital information or color the news in their own favor. We willingly make every effort to get the facts straight; but we do not like to be placed in a position where others may tell us what we may, or may not, print. In the long run, we believe that this policy works out for the best interests of the industry we serve.

Beer Retailers Prefer Mechanical Cooling

Brunswick-Balke-Collender Co.
623-633 S. Wabash Ave., Chicago
July 13, 1934.

Editor:

We are happy to report that our mechanically refrigerated equipment is finding a more ready market now that retailers are more than ever realizing the advantages of beer dispensed by the mechanically precooled method as compared with the old method.

Increased sales and more satisfied patronage are valuable proven points in favor of this type of refrigeration for beer.

A. J. MULLOWNEY.

Dr. Steinmetz's Forecast On Gas Refrigeration

Boston Consolidated Gas Co.
109 Arlington St., Boston
July 9, 1934.

Editor:

In your issue of June 13, 1934, a letter from Robert E. Crane, requesting information as to the statement made by Dr. Steinmetz that "Future domestic refrigeration lies with the gas industry."

This statement was published in Hugh Farrell's book, "What Price Progress" which can be secured at any good public library.

R. E. FINNIN,
Manager, apartment refrigeration dept.

Majestic Situation Is Still Uncertain

1108 S. Second St., Springfield, Ill.

Editor:

I have been reading your paper and watching for some definite news concerning the disposition of the Majestic plant.

Has it been sold in receivership?

Are Majestic refrigerators being manufactured? What is the date of manufacture of their latest model?

JAMES M. WRIGHT.

Answer: Although various rumors about the Majestic plant are afloat, no final disposition of the assets of the Grigsby-Grunow Co. has been made. The last Majestic refrigerators and radios to be manufactured were 1933 models.

Correction

Auditorium Conditioning Corp.
17 East 42nd St., New York City
July 13, 1934.

Editor:

I note on page 15 of your July 11 issue a headline "Four Hundred Auditorium Systems Installed Since Jan. 1."

I wish this was so, but your "wandering reporter" apparently got his statistics mixed, as this heading should have read "Over Four Hundred Auditorium Systems Installed."

You might tell your "wandering reporter" that the writer enjoyed very much his visit here and would be glad to see him at any time.

H. N. VAN DERWERKER,
Asst. secretary and manager.

Answer: The headline writer went wrong here. The news story itself said: "Installations by its agents since Jan. 1 of this year have brought to more than 400 the number of air-conditioning systems installed in the United States under license of the Auditorium Conditioning Corp., air-conditioning patent holding company here."

Legality of Combining Service & Supply Business

Capitol Refrigeration Service Co.
2836 S. Springfield Ave., Chicago
July 13, 1934.

Editor:

We are contemplating combining our service work with wholesale refrigeration supplies which we would sell to other service men.

We would like to know if this combination would be unethical or violating any rules, laws, or organizations.

EMIL SMITH.

Answer: Your action in combining service work with your wholesale supply business violates no laws or NRA codes of which we are aware.

However, it might be well to obtain a copy of the NRA code of fair competition for the wholesale trade and get from your local NRA office the latest interpretation of Article VII, Section 10, which declares that it is an unfair trade practice for wholesalers who secure a substantial portion of their business from members of the retail trade to enter into competition with retailers by selling merchandise at wholesale prices to ultimate consumers.

Distributor Looking for A Franchise

425 Cherry St., Elizabeth, N. J.
July 9, 1934.

Editor:

Will you kindly advise me of the names of manufacturers of domestic refrigerators placed on the market within the last two years or less and who are looking for a distributor?

Also please advise me of the names of washing machine manufacturers making popular priced washers.

THOS. F. KENNA.

Articles Carefully Selected and Checked

Westinghouse Electric & Mfg. Co.
Merchandising Division
Dallas, Tex.
July 7, 1934.

Editor:

I have been a subscriber to your publication for some time and I must say that I have enjoyed every issue that I have received. The articles that appear in the NEWS seem to be very well selected and checked before they are published.

RAYMOND J. CREECH,
Service supervisor.

Outstanding Paper

22 Battey St., Putnam, Conn.
July 9, 1934.

Editor:

Have found ELECTRIC REFRIGERATION NEWS the outstanding refrigerator paper.

Could it be possible to subscribe for just six months? If possible send in latest issue. I'll send the amount immediately.

CAMIL DUFAULT.

SEE PAGE 15 FOR
FEATURES OF COMING ISSUES

COMMERCIAL REFRIGERATION

Percival Sales Show Increase This Year

DES MOINES—With the demand for its walk-in coolers and display cases unusually large this year, the C. L. Percival Co. here is employing 50 per cent more men in its shops than it did last season, and is breaking all previous shipment records on the products it manufactures.

In May, the company shipped 45 display cases, 17 of them with Copeland condensing units attached. Additional shipments included 10 walk-in boxes, five reach-in coolers, 35 Copeland and Carbondale commercial machines, and 14 unit coolers using Larkin and Peerless coils, according to R. A. Greene, sales manager.

The organization has its own branches in Omaha, Cedar Rapids, and Davenport, Ia., and Peoria, Ill. It also consigns stock to distributors in Duluth, Minn.; Fargo, N. D.; Boise, Idaho; Denver; Wichita, Dubuque, Iowa; Monkato, Minn.; Sioux City, Iowa; and Danville, Ill.

35 Walk-In Coolers

During the first five months of this year, Percival sold 35 walk-in coolers—more than the company's total sales of that product during the two previous years.

From April 1 to June 16, a contest was held among the organization's salesmen and sales agents. There were four separate grades of quota, with prizes for quota-makers ranging from $30 to $150. Over-quota awards ranged from 10 cents for every $10 over quota to 30 cents for every $10. Grand prizes were given the winner in each quota classification—$50, $37.50, $20, and $10.

Employes In Plant

Now at work in the Percival plant are nine cabinet makers and carpenters, eight metal workers, three painters, two glazers, two men to cut lumber for the carpenters, two general shop assistants, and eight refrigeration engineers to install the commercial condensing units sold by branches or distributors of the company.

Percival has sold and installed three cooling systems in Des Moines this year, and has a fourth one contracted for, according to W. H. Percival, president. It placed a three-ton system, using a Lipman unit, in the Boyce Sweet Shop, and a six-ton Carbondale system in the Brown Cafe, which has a seating capacity of 160.

Just completed is installation of a 10-ton Carbondale unit to cool the Butterfly Coffee Shop, which seats about 200 persons. Yet to be installed is another 10-ton Carbondale machine for cooling the coffee shop and barber shop in the Savery Hotel. Ducts are used for air distribution in all of these installations.

Stock Dividend Declared By Hussmann-Ligonier

ST. LOUIS—Board of directors of Hussmann-Ligonier Co., manufacturer of commercial refrigerators at its June 20 meeting, declared on the convertible preferred stock of the company, a dividend of 35 cents per share, of which 15 cents per share will be paid in cash and 20 cents per share in convertible preferred stock, payable Aug. 1, 1934, to holders of convertible preferred stock of record at the close of business July 20, 1934.

G-E Russ Installations In Albany Reported By Merriam

SCHENECTADY—A number of installations of Russ beer coolers and General Electric condensing units have been made recently by A. Wayne Merriam, Inc., G-E distributor here, according to E. F. Fyler of the sales promotion department.

Four Russ RB-52 instantaneous units refrigerated by a G-E CM-6A 1½-hp. compressor have been installed in the State Grill in Albany, N. Y. At the bar are two serving stations of four spigots each, handling the product of a brewery making three deliveries per day. An average of 125 half-barrels are used per week. The system operates under 35 lbs. keg pressure.

At Glen's Grill in Albany are four RB-53 and two RB-52 units operating in conjunction with a General Electric CM-8 3-hp. compressor. At the bar are two stations of five draft arms each and two stations of three each. Two deliveries are made daily from the brewery, and the beer is not precooled. At each station is space for bottle cooling, and this space, plus a 6-ft. display case, are cooled by the same compressor.

Another recent installation in Albany is at Panetta's Tavern, which has a 44-ft. Russ bar counter and a 39-ft. Russ back bar. In the bar counter are complete workboard and sink facilities. There is one serving station with six draft arms. The tavern also purchased a 10x12-ft. precooler and a 6-ft. display case.

The bar is cooled by a G-E CM-6A 1½-hp. compressor, which, with an EC-9 conditioned-air evaporator, also refrigerates the cooling room. The case is cooled by a CM-4A ½-hp. unit and EC-4 conditioned-air evaporator. Keg pressure is 32 lbs. Approximately 60 half-barrels of beer are served weekly.

An 18-ft. bar counter and back bar of the same length are now in use at the Elk's club in Gloversville, N. Y., accommodating two dispensing stations, each with two draft arms for beer and one for water. There is refrigerated storage space for four half-barrels of beer in two sections of the back bar base. Refrigeration is supplied by a General Electric CM-6A 1½-hp. compressor located in a basement two floors below the bar. Keg pressure is 38 to 40 lbs. The bar also has a complete layout of cocktail workboard and sink and drain sections.

Chicago Firm Develops Filtair-Conditioner

CHICAGO—The Filtair-Conditioner, a combination air circulator and purifier, has been developed by Midwest Chemical Corp. for application with mechanical refrigeration coils in commercial food storage refrigerators.

The Filtair-Conditioner unit is placed between the bunkers in the refrigerator and air is drawn over the coils by means of a small electric fan contained within the unit and then forced through a bed of activated carbon.

It is said to be possible to put fruit, vegetables, fish—unprotected—in a refrigerator that has this unit without in any way contaminating the other foods.

Protected Vegetables on Display

Vegetables are always fresh while kept in the display case pictured above, refrigeration being supplied by a special Frigidaire evaporator. Note the G-M "protected foods" sign on top of the case.

Seeger Now Making Chilspray Fish Case

NEW YORK CITY—Seeger Refrigerator Co. of St. Paul is now manufacturing Chilspray fish display cases, according to H. L. Forman of this city who designed the cases and introduced them several months ago. The Seeger branch is displaying it.

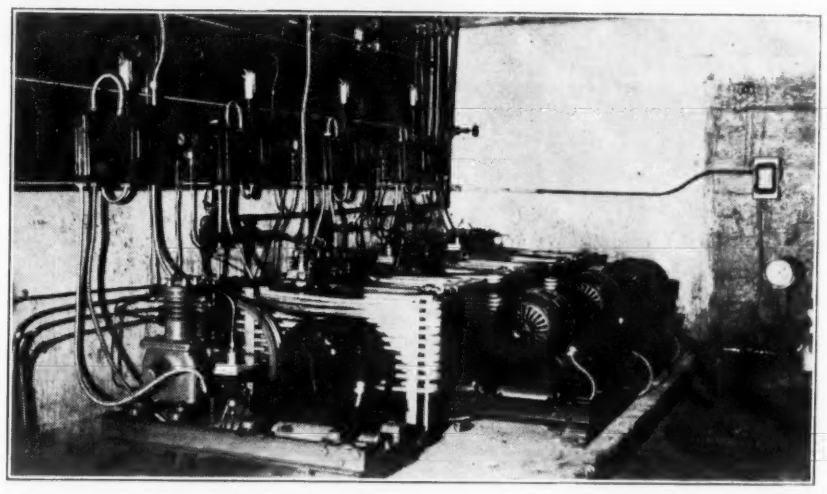
Mr. Forman has just licensed the Maritime Stores Corp. of 353 West 14th St. here to manufacture and distribute the fish cases in Italy and France. C. V. Hill & Co., Inc., of Trenton is building the first cases for shipment abroad by Maritime, but production will be continued in an Italian factory, according to Mr. Forman. Heading the Maritime organization is Octave De Matteis, who also serves as a food consultant to the Italian government.

The Chilspray cases being built by Seeger are of a double-duty type and use Bush cross-fin coils. At the front-bottom of the display section is one spray pipe, and another is located in the concealed storage compartment. Water is placed in a container in the base of the case and is sprayed over the fish at regular intervals by a circulating pump controlled by a time clock. It is recommended that the water, which seeps back to the container, be changed every 48 hours.

Gets $2,000 Order for Copeland Equipment

HUNTINGTON, W. Va.—T. B. Powers, commercial sales manager of Appliance Sales Co., Inc., of this city, recently appointed Copeland distributor, reports that the second day after the franchise was granted, more than $2,000 worth of Copeland commercial refrigeration equipment was sold.

Refrigeration for a Hotel



This group of Brunner condensing units supplies refrigeration for food and beverage cooling needs in a Pittsburgh hotel.

* * *

4 Units Do Yeoman Duty In Pittsburgh Hotel

PITTSBURGH—Low pressure commercial refrigeration units installed by Brunner Mfg. Co. are meeting practically all the refrigeration requirements of the Pittsburgher hotel here.

Brunner equipment installed consists of three 3-hp. and one 1-hp. condensing units. These four compressors are used on the following applications:

Manufacturing 3,000 lbs. of ice daily.

Cooling an ice storage room 12x7x7 ft. to 28° F.

Cooling wine room 18x7x7 ft. to 50°.

Cooling a beer storage room 11x6x7 ft. to 45° F.

Cooling meat room 15x8x10 ft. to 35°.

Waldorf-Astoria's Bar Has 3 Cooling Units

NEW YORK CITY—The bar of the extravagantly decorated Lounge Cafe on the north corridor of the Waldorf-Astoria hotel here has been equipped with three 30-B2 Temprite beer cooling units serving six faucets.

Refrigeration is supplied by a ½-hp. Frigidaire water-cooled compressor.

The 18-ft. bar has a mahogany top, and a 15-ft. Monel metal workboard.

The cafe itself has a deep blue and jade green color scheme with chromium contrasting with the blue mirror glass. Tables have cartoons cut into their green rubber tops—an idea executed by Tony Sarg. Silver shell walls are of "Kapagold."

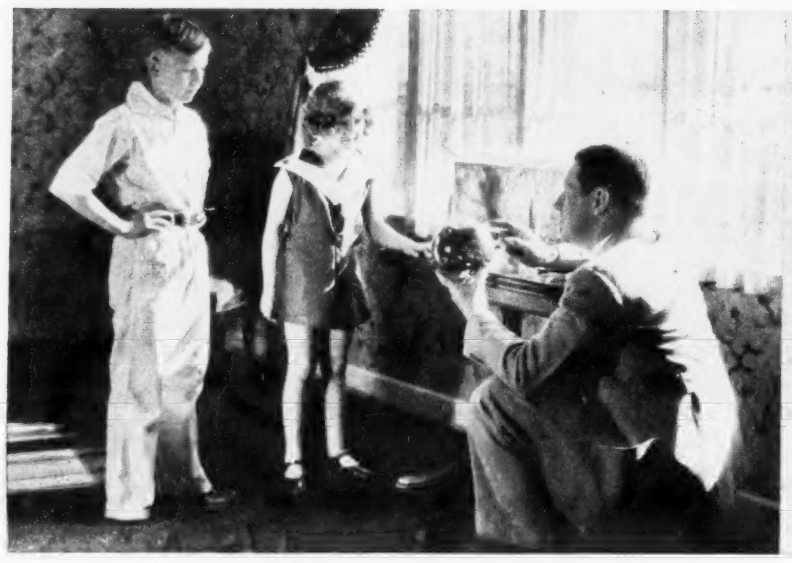
For ten years it has been recognized in the trade and by the public in general that Universal Cooler Units are dependable products. This is the result of a strict manufacturing policy and because we take the time to build each unit right.

Refrigeration by Wire

UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN BRANTFORD, ONTARIO

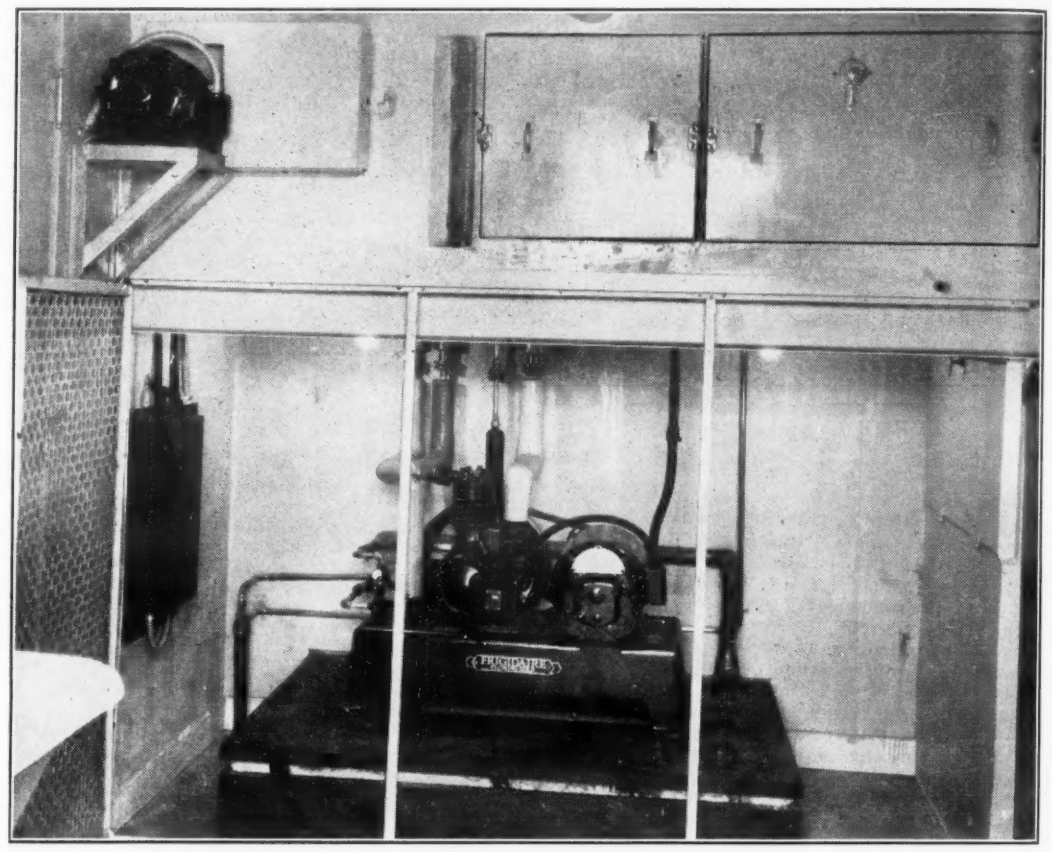
MANUFACTURERS OF A COMPLETE LINE OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

Frigidaire Air-Conditioned Home Is Equipped with Multitude of Devices to Provide Comfortable and Scientific Living Accommodations

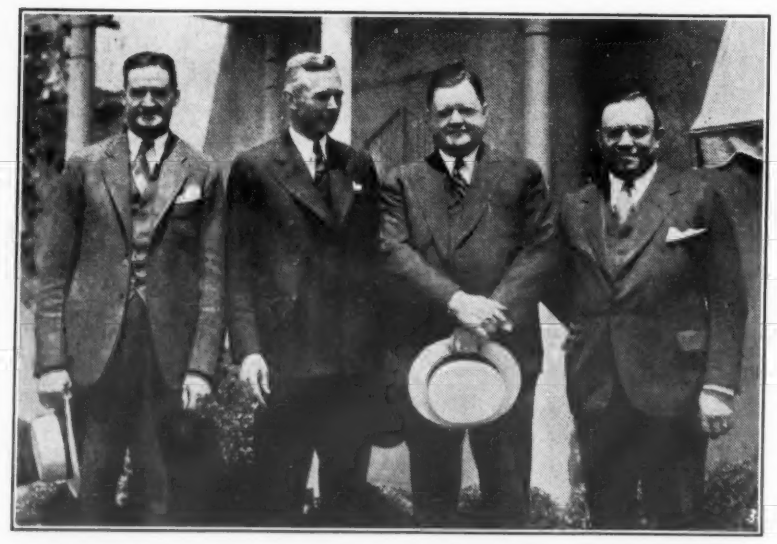


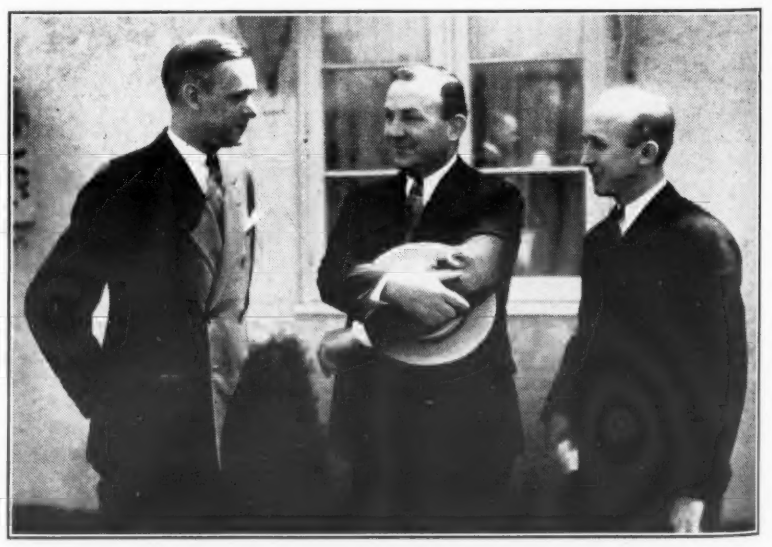
(1) Father shows the kiddies how much dirt the filters extract from the air every week. (2) If she presses one button, a window opens. Press another, and she "turns on more cold." Other buttons raise and lower the bed, adjust the lights, and open or close the doors. (3) A cold snack may be obtained at any time in the master bedroom of the Frigidaire house.

Upper diagram represents the first floor plan of the home; lower diagram shows second floor.

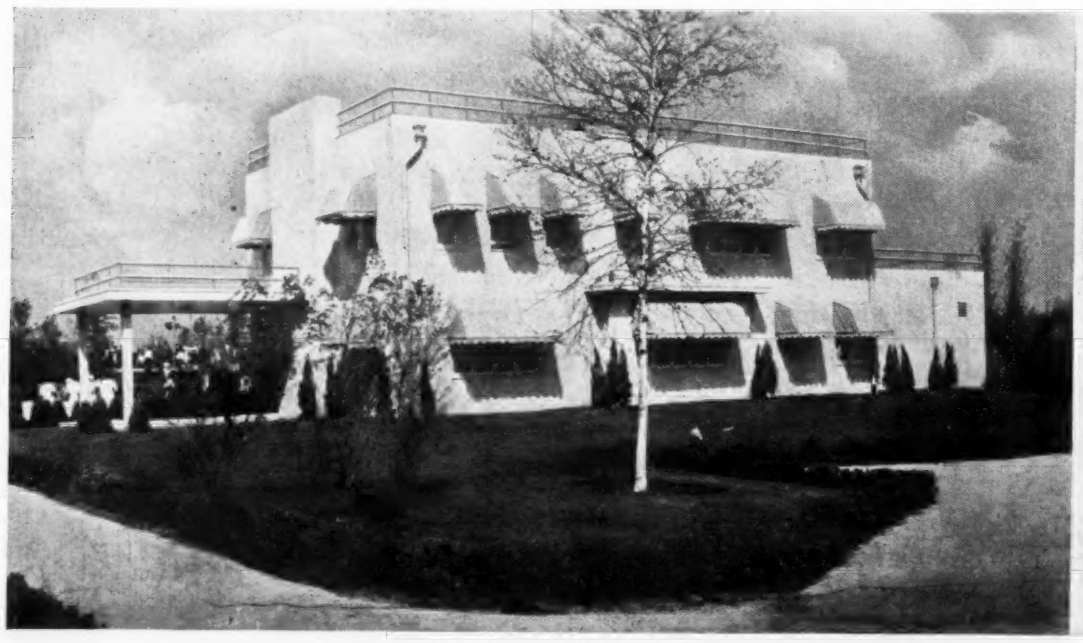


The compressor for the central air-conditioning system which operates through the ductwork.





(1) Frigidaire's "Big Four" determiners of policy—H. W. Newell, vice president in charge of sales; B. B. Geyer, president of the Geyer Co., Frigidaire advertising agency; W. F. Armstrong, vice president and assistant general manager; E. G. Biechler, president and general manager—photographed in front of the house. (2) Charlene Tucker raises her bed for a more comfortable sitting-up position. (3) J. B. Nahstall, who is in charge of the Fair's Frigidaire exhibit; Frank R. Pierce, sales manager; and A. D. Farrell, manager, Frigidaire exhibits.



(1) Exterior of the Frigidaire air-conditioned home at A Century of Progress exposition. (2) Living room of the home. Unlike other model homes at the Fair, modernistic treatment is avoided.

STATISTICS

Cost of Advertising Household Refrigerators in Magazines in First 6 Months of 1934

The following figures, compiled by Curtis Publishing Co., give the total expenditures of nine manufacturers in national magazines during the first six months of 1934. See story on page 1.

Saturday Evening Post	$ 445,615.20
Good Housekeeping	195,834.00
Collier's	100,900.00
Ladies' Home Journal	97,794.00
Woman's Home Companion	86,240.00
McCall's	52,499.20
American Magazine	28,350.00
Liberty	19,125.00
Hearst's-Cosmopolitan	14,348.00
National Geographic	8,760.00
Better Homes & Gardens	8,100.00
Time	7,500.00
Fortune	4,220.00
The New Yorker	1,500.00
Popular Mechanics	578.60
Total	**$1,071,364.00**

Crosley

Crosley Radio Corp.
(Crosley Shelvador Electric Refrigerator)

Saturday Evening Post	$11,905.20
McCall's	10,399.20
Good Housekeeping	9,354.00
Time	5,450.00
Ladies' Home Journal	1,944.00
Woman's Home Companion	1,740.00
Hearst's-Cosmopolitan	1,548.00
American Magazine	1,440.00
The New Yorker	900.00
Popular Mechanics	578.60
Total	**$45,259.00**

Frigidaire

Frigidaire Corp.
(Frigidaire Electric Refrigerator)

Saturday Evening Post	$ 52,650.00
Ladies' Home Journal	33,750.00
Woman's Home Companion	30,600.00
Good Housekeeping	25,200.00
Collier's	21,900.00
Liberty	19,125.00
American Magazine	18,750.00
Hearst's-Cosmopolitan	12,800.00
Total	**$214.775.00**

General Electric

General Electric Co.
(General Electric Refrigerators)

Saturday Evening Post	$ 86,940.00
Collier's	25,000.00
Woman's Home Companion	19,250.00
Ladies' Home Journal	17,100.00
Good Housekeeping	16,800.00
National Geographic	8,760.00
American Magazine	8,160.00
Better Homes & Gardens	8,100.00
Time	2,050.00
Fortune	1,700.00
The New Yorker	600.00
Total	**$194,460.00**

Grunow

General Household Utilities Co.
(Grunow Refrigerator)

Saturday Evening Post	$23,760.00
Total	**$23,760.00**

Gibson

Gibson Electric Refrigerator Corp.
(Gibson Electric Refrigerator)

Saturday Evening Post	$ 7,200.00
McCall's	3,700.00
Total	**$10,900.00**

Kelvinator

Kelvinator Corp.
(Kelvinator Refrigerator)

Saturday Evening Post	$ 72,540.00
Ladies' Home Journal	45,000.00
Good Housekeeping	42,000.00
McCall's	38,400.00
Collier's	36,500.00
Fortune	2,520.00
Total	**$236,960.00**

Leonard

Leonard Refrigerator Co.
(Leonard Refrigerator)

Saturday Evening Post	$ 43,200.00
Woman's Home Companion	34,650.00
Good Housekeeping	28,000.00
Collier's	17,500.00
Total	**$123,350.00**

Norge

Norge Corp.
Division of Borg-Warner Corp.
(Norge Rollator Refrigeration)

Saturday Evening Post	$50,400.00
Good Housekeeping	30,800.00
Total	**$81,200.00**

Stewart-Warner

Stewart-Warner Corp.
(Stewart-Warner Electric Refrigerator)

Saturday Evening Post	$37,170.00
Good Housekeeping	18,480.00
Total	**$55,650.00**

Westinghouse

Westinghouse Electric & Mfg. Co.
(Westinghouse Electric Refrigerator)

Saturday Evening Post	$59,850.00
Good Housekeeping	25,200.00
Total	**$85,050.00**

TVA Leaders Speak to Students on Program

KNOXVILLE, Tenn. — Forty-nine students from 10 states enrolled for the University of Tennessee's first course in "electricity in the home" at the session beginning June 25. A second section of the summer course will begin July 16. The course will be in the regular curriculum of the school of home economics next fall.

Appliance manufacturers have consigned an assortment of ranges, refrigerators, water heaters, washers, and smaller equipment of the laboratory. Refrigerators were supplied by Frigidaire, General Electric, and Kelvinator.

The Electric Home & Farm Authority wired the laboratory, and Miss Eloise Davison, EH & FA electric service director, assisted Miss Harris in planning the course. Mrs. B. Gartrell Danner, University of Georgia research associate, conducted the laboratory classes at the summer session.

Dr. Harcourt A. Morgan and David E. Lilienthal, directors of TVA and EH & FA, delivered the opening lectures. George D. Munger, EH & FA commercial manager, attended the opening sessions.

Dr. Morgan said that rural electrification is closely allied with the efforts of his division of TVA to correlate rural agriculture and industry, "bringing industry to the country to help pay the bill for better living."

Mr. Lilienthal announced in his address that Tupelo, Miss., first municipality to buy and sell power at TVA rates, "is in the best financial shape it has ever been, after three months of municipal operation with TVA power."

Exports of Electric Refrigerators

May, 1934, Shipments Reported by the Bureau of Foreign and Domestic Commerce, Washington, D. C.

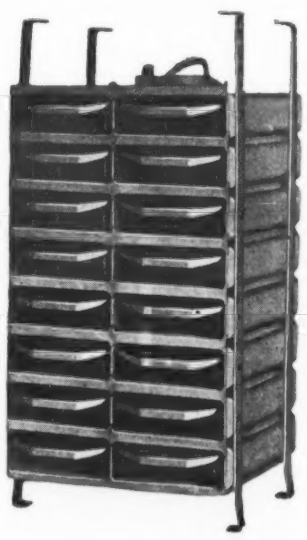
	Electric Household Refrigerators		Electric Commercial Refrigerators Up to 1 Ton		Parts for Electric Refrigerators
	Number	Value	Number	Value	Value
Austria	36	$ 2,685	11	$ 818	$ 976
Belgium	99	7,249	85	7,127	3,095
Czechoslovakia	1	97	...	...	5,454
Denmark	...	...	70	6,211	1,843
Finland	31	2,740	59	6,317	2,072
France	695	54,666	195	18,795	23,665
Germany	166	15,242	14	770	9,408
Gibraltar	2	194	3	519	37
Greece	25	2,559	4	347	778
Irish Free State	...	...	...	...	728
Italy	278	27,471	57	4,908	8,807
Malta, Gozo, and Cyprus	5	391	...	...	...
Netherlands	316	22,294	90	6,886	14,639
Norway	189	17,860	52	5,535	1,942
Poland and Danzig	5	821	4	781	426
Portugal	13	1,219	3	1,059	42
Rumania	82	6,472	...	...	530
Spain	274	21,450	27	3,121	10,539
Sweden	131	8,899	15	1,708	3,404
Switzerland	143	14,594	71	4,910	17,385
United Kingdom	1,027	88,000	139	7,941	56,034
Yugoslavia	10	1,227	17	1,651	890
Canada	1,516	64,005	295	20,914	88,722
Costa Rica	7	743	...	...	86
Honduras	13	1,467	...	...	102
Nicaragua	2	203	...	...	...
Panama	38	3,159	20	1,806	1,846
Salvador	14	1,426	...	...	179
Mexico	143	13,568	10	1,733	10,041
Newfoundland and Labrador	...	...	...	...	43
Bermudas	42	3,905	5	518	814
Barbados	15	936	1	351	78
Jamaica	...	...	...	...	198
Trinidad and Tobago	13	1,237	...	...	4
Other British West Indies	2	235	1	348	331
Cuba	84	8,250	17	2,295	2,912
Dominican Republic	10	660	...	...	15
Netherland West Indies	16	1,710	1	155	25
French West Indies	4	445	...	...	...
Haiti, Republic of	3	177	...	...	...
Argentina	46	3,248	5	1,021	1,750
Brazil	214	20,482	48	3,492	6,041
Chile	37	2,752	...	...	86
Colombia	32	2,454	2	367	242
Ecuador	7	516	...	...	51
British Guiana	3	232	...	...	...
Surinam	23	3,052	...	...	126
Peru	14	1,212	...	...	145
Uruguay	...	...	...	...	485
Venezuela	72	7,264	3	1,169	642
British India	281	25,577	44	4,775	7,375
British Malaya	54	4,496	1	544	518
Ceylon	4	290	...	...	155
China	140	14,310	1	206	1,086
Netherland East Indies	57	6,121	1	343	2,488
French Indo-China	1	74	...	...	...
Hong Kong	71	6,119	8	726	23
Japan	12	1,274	17	1,501	7,101
Kwantung	14	1,444	...	...	2
Palestine	78	6,521	...	...	1,618
Philippine Islands	58	4,290	4	513	548
Siam	8	919	...	...	138
Syria	6	656	2	271	204
Turkey	238	24,189	31	5,629	289
Other Asia	4	340	...	...	...
Australia	104	3,940	...	...	1,211
French Oceania	6	552	...	...	110
New Zealand	5	201	...	...	67
Belgian Congo	1	95	...	...	...
British East Africa	14	1,480	...	...	413
Union of South Africa	543	47,296	56	4,877	7,561
Gold Coast	6	578	...	...	91
Nigeria	13	1,010	...	...	3
Egypt	17	2,119	3	243	553
Algeria and Tunisia	282	25,195	31	3,046	2,790
Madagascar	1	75	...	...	...
Other French Africa	14	1,598	...	...	590
Italian Africa	2	176	...	...	...
Morocco	149	12,111	3	782	1,106
Mozambique	1	96	...	...	10
Canary Islands	25	1,937	...	...	95
Total	**8,107**	**$634,547**	**1,526**	**$137,029**	**$313,803**
Shipments to Hawaii	224	23,223	9	2,477	2,299
Puerto Rico	298	34,415	12	2,245	1,453

JOBBERS AND DISTRIBUTORS: McCORD OFFERS YOU A LINE TAILORED TO MEET YOUR REQUIREMENTS

The complete McCord line, part of which is illustrated below, meets your every requirement for refrigerating surface. A pioneer manufacturer of heat transfer equipment, McCord products are backed by thirty years of continuous engineering and research. Catalogs, sales helps and friendly engineering assistance are available to McCord users.

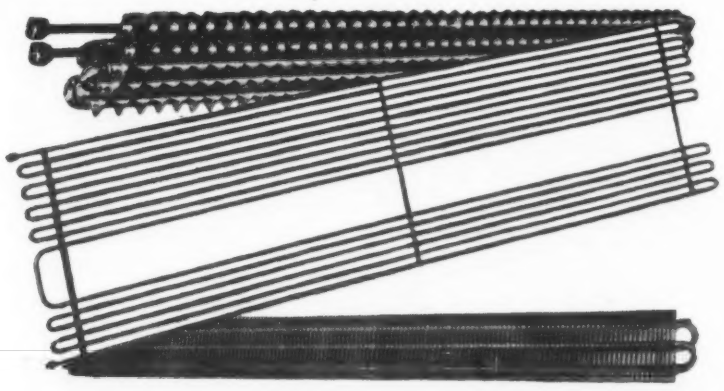
McCord Forced Convection Units

All copper surface construction—attractively finished—6 sizes—ratings from 2,200 B. T. U. to 14,000 B. T. U. per unit—Multipass flow of refrigerant giving maximum performances—High grade motors—fans carefully engineered for quiet operation—available in single or three speeds—A. C. or D. C. currents—110 or 220 volts—for use with methyl chloride, sulphur dioxide or freon.



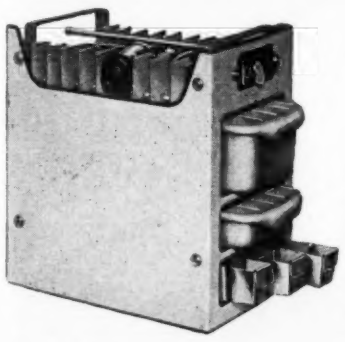
McCord Ice Makers

All copper construction—manifolded to give a semi-flooded condition — rapid freezing—can be used in conjunction with commercial coils—in all sizes from one ice tray sleeve up—for use with methyl chloride, sulphur dioxide or freon—uses standard size ice trays.



McCord Commercial Evaporators

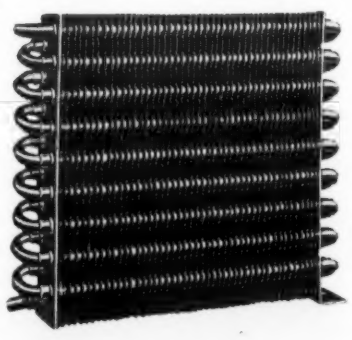
137 standard sections available—an evaporator or combination of evaporators to meet any conceivable heat load—special lengths can be supplied immediately on demand—greatest flexibility in application of any commercial coil on the market—manufactured in copper or steel for use with methyl chloride, sulphur dioxide, freon, ammonia, or carbon dioxide.



McCord Domestic Evaporators

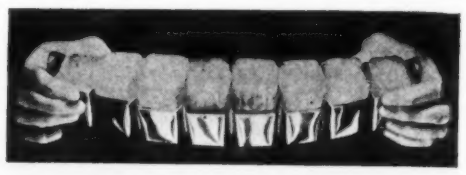
All copper construction—two tone vitreous porcelain enamel finish—metal parts heavily nickled—rapid freezing—four sizes—two to five tray ice capacity—for boxes from 3 to 10 cubic feet—for use with methyl chloride, sulphur dioxide or freon.

SPECIALLY ENGINEERED SURFACE. We will be glad to design or collaborate in the design of special surface, such as air conditioning, heating, etc., to meet particular requirements. Send your blue prints or specifications. Quotations promptly.



McCord Condensers

18 stock sizes—from ⅛ H. P. up—special sizes also available in quantities—steel or copper construction,—for all refrigerants—can be supplied with receivers on request.



McCord Metlflex Ice Trays

Available in 8 different sizes—six to nine cubes per tray—three trays used per shelf—ice instantly released without use of water or other means by simple flex of the tray—made of stainless steel—will not corrode or tarnish.

McCord Spiral Fin Surface

Nine tube and pipe sizes—6 fin spacings—manufactured in steel or copper for use with all refrigerants—ideal for air conditioning installations—can be supplied in all lengths—pipe sizes threaded to fit standard pipe fittings—finish hot dip.

McCord has some excellent territories open for forward-looking jobbers and distributors of experience and aggressiveness. A McCord connection offers an opportunity not only for immediate money making operations, but for building a substantial profitable business for years to come. Constant developments, and research are bringing forth new products which will be available to McCord distributors. Write or wire for complete information. You will like the McCord method of doing business.

McCORD RADIATOR & MFG. CO., DETROIT, MICH.

ENGINEERING

Closely Controlled Air Conditions Used to Test Refrigerators

Westinghouse Laboratory Operates Five Insulated Rooms With Temperature and Humidity Control

By R. E. Deaux, Refrigerating Engineer
Westinghouse Electric & Mfg. Co., East Springfield, Mass.

IN testing refrigerators and refrigerating equipment, it is very essential that test conditions be constant and favorable at all times. Our refrigeration engineering laboratory is equipped to give regulated room temperatures and humidities; regulated voltages, both d.c. and a.c.; variable frequency; noise-proof room, and other conditions necessary for consistent test results.

Ambient Temperatures Regulated

In the laboratory are five well insulated test rooms. These rooms are automatically controlled to give the following tests conditions: one is adjusted to 65°±½° F., one is 80°±½° F., one is 95±1° F., one is 110°±½° F., and one is used for a humidity room and can be varied to get any temperature and humidity from 65° F., and 30 per cent relative humidity to 120° F., 95 per cent relative humidity. The latter room, for all standard cabinet tests, is held at 90° F., 90 per cent relative humidity.

The 95° F. room is used mainly for life tests and is not controlled as closely as are the other rooms where performance data is obtained. In all rooms with the exception of the 95° room, the temperature gradient from the floor to the ceiling is only 1° F. and the temperature in various parts of the room does not vary more than 1° F. under ordinary conditions.

This close tolerance in room temperature is accomplished by means of a special duct ventilating system.

A Sirocco type blower driven by a d.c. variable speed motor is mounted near the ceiling in one end of each room directly above a large evaporator which is part of a multiple system of refrigeration.

This blower runs continually, delivering air through a duct to the center of the room into a large inverted mushroom shaped duct hanging from the ceiling. The clearance between the mushroom and the ceiling is 1 in.

This small clearance restricts the directional flow of the air from the blower and distributes it equally in all directions along the ceiling.

Recirculating Duct

The intake duct for recirculating the air is located immediately below the mushroom in the center of the room. Therefore the air must travel along the ceiling down the side of the walls, and back to the center of the room near the ceiling to reenter the recirculation duct.

The foregoing procedure occurs when the air is at the desired temperature. A metastatic thermo-regulator mounted on the ceiling about 12 in. from the mushroom so the air from the blower passes over it, controls the operation of the heating and cooling dampers.

There are four ducts leading to the intake of the blower; one for recirculating air; one fresh air duct leading to the outside room; one duct from the cooling unit; and one from the heating unit.

Thermo-Regulator

The metastatic thermo-regulator used is a specially built regulator having three contacts, one common and two spaced 1° F. apart.

This regulator is so sensitive it will respond to a change in temperature of .05° F. When the temperature rises 1° F. from a predetermined temperature, contact is made with the upper limit.

This operates a relay which in turn operates a solenoid valve on a line with a pressure of 10 lbs. per sq. in. permitting air to pass, expanding a bellows which is connected by levers to a damper over the entrance of the cold air duct.

Circulation of Cold Air

As this damper opens, air is drawn over the refrigeration coils, mixing at the blower with air from the recirculation duct and the fresh air duct, and is blown out of the mushroom, dropping room temperature.

When the temperature drops .05° F., the relay circuit at the metastatic thermo-regulator is broken, permitting the cold air damper to close. Air is then recirculated through the recirculation duct until the temperature drops 1° F.

When this occurs the other circuit is broken at the metastatic thermo-regulator which opens the hot air damper through a similar set of relays as described for cooling.

In order to prevent overlapping and energy waste, no steam is passed through the heating coil except when the hot air damper is opened, and no refrigerant is admitted to the cooling coil except when the cold air damper is open.

This is accomplished by means of an air-operated diaphragm valve on the steam line and a solenoid valve on the incoming refrigeration line. The valves are operated in parallel with their respective damper controls.

The dry-bulb temperature in the humidity room is controlled as in the other rooms by a metastatic thermo-regulator. The per cent of relative humidity is controlled by a humidistat and a Powers temperature control.

Spray Chamber

Spray nozzles are built in the air circulation duct. Water is forced to the nozzles by means of a centrifugal water pump. The water pump only runs when more moisture is needed and is controlled through relays by the humidistat.

The Powers control operates a heater in the incoming water line and enables the pump to deliver water of the correct temperature, which is usually set to give water at approximately the same temperature as the dry-bulb setting. By this means wet and dry-bulb temperatures can be maintained ± 1° F.

Source of Power

The incoming 60-cycle power is brought in through an automatic voltage regulator to a distribution board. From here it can be relayed to all rooms and test benches in the laboratory.

Three separate circuits are provided in each test room, terminating at the distribution board. By this arrangement any combination of voltages or frequencies can be supplied to any location in the laboratory.

Where an automatic regulated voltage other than 110 volts is required, a 5.7 k.v.a. induction regulator is used in conjunction with an automatic regulating relay.

A separate control circuit, part of the potential coil circuit of the relay, is provided in each room, and a portable rheostat is used making it possible to regulate the voltage at the terminals of the load, compensating automatically for line drop.

The 115 volt d.c. power is generated by means of two 7.5 kw. motor generator sets located directly in back of and determining on the distribution board. These generators are compound wound giving good regulation. One of the generators is connected to an automatic vibrating type voltage regulator and is used on loads where super-regulation is required.

The 230-volt d.c. is supplied from a motor generator set also located directly in back of the distribution board.

Odd-Frequency Generator

Odd frequencies are supplied from a 15 k.v.a. generator driven by a 10—15-hp., 230-volt d.c. variable-speed motor located in our laboratory power plant. Frequencies from 25 to 120 cycles can be obtained from this set. The motor is driven from our 230-volt generator and 115-volt d.c. is used for the field of the a.c. generator.

All controls for the laboratory power plant are located on the main control panel which adjoins the main distribution board. Voltages of any source of supply can be read directly from the control panel. A frequency meter on the board indicates the frequency of the variable frequency set.

All sound measurements and noise investigations are made in a large noise-proof room so constructed that all external noise is excluded.

Other equipment provided for use in creating constant conditions for tests and processing include: a small air compressor which automatically provides air for all room temperature controls when the main shop supply is shut down or fails; a gas-fired steam boiler used to supply steam to all rooms in case the main steam plant is shut down at any time; an electric oven for experimenting in drying units or processing other articles; two vacuum pumps (one portable) to evacuate units and other experimental apparatus; and a humidity box and salt spray box for small articles being tested for durability of finishes and rust proofing (the humidity box maintains 110° F., 100 per cent relative humidity, a 4 per cent salt solution is sprayed in a fine mist into the salt spray box). A 3-ton compressor provides refrigeration for room temperature regulation.

Ducts Used for Air Supply

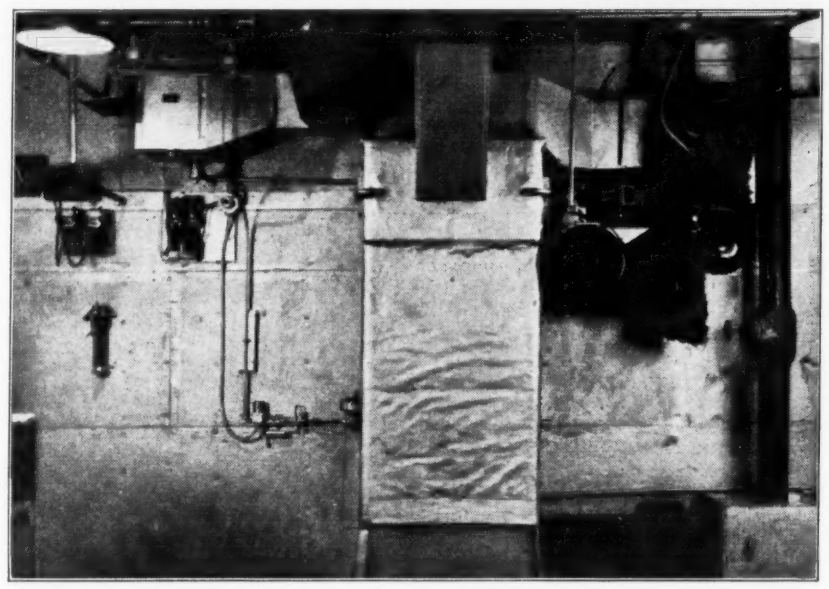


Fig. 1—Arrangement of air ducts, circulating blower, and damper controls for Westinghouse laboratory. Hot air damper is shown open (upper left).

Ben L. Boalt Rejoins Penn Switch Co.

DES MOINES—Ben L. Boalt, after a six months' leave of absence during which time he resided in his original home of St. Paul, has resumed his former position with the Penn Electric Switch Co., according to an announcement made by Nelson B. Delavan, sales manager.

After a short visit at the factory, Mr. Boalt left on an extensive trip to contact manufacturers throughout the country. During late July and August, he will help conduct the series of dealer meetings which the Penn Electric Switch Co. is sponsoring to introduce their new Penn Temtrol system of temperature regulation.

Dust-Proof Motors Designed by G-E

SCHENECTADY, N. Y. — A new line of direct-current motors, designed for those applications where dust, dirt, moisture, or other foreign matter is present in large quantities, has been introduced by General Electric Co. The new motors are totally enclosed and fan-cooled, and are available in a variety of electrical and mechanical modifications — in sizes from ½ to 200-hp.

A system of dual ventilation is utilized. This together with watertight conduit boxes, and labyrinth seals at the cartridge-type bearing housings effectively protects the working parts of the motor.

An internal fan draws the warm air from the windings and core and circulates it around the totally enclosed interior of the motor so that it gives up its heat to the frame and end shields. An external fan draws cool air in through mesh openings in an outer end shield and directs it over the surface of the magnet frame and inner end shields.

Percival Designs Cooler For Forced-Draft Units

DES MOINES—Designed especially for use with forced convection units is a new market cooler being made by the C. L. Percival Co. here. It combines features of walk-in and reach-in boxes, there being a full-length door in the center of the cooler, and reach-in compartments on either side of the large door.

The cooler is seven ft. wide, six ft. deep, and eight ft. four in. high. Its front is finished in white porcelain trimmed in black. The interior is constructed of white spruce. Armstrong corkboard three inches thick, sealed in with hot asphalt, insulates the box. Display doors have three thicknesses of glass and are fitted with double gaskets.

Hardware is nickle-plated brass. White ash meat rails are used, and there is hanging space on three sides of the cooler. Exterior sides of the box may be finished in porcelain on special order.

E. T. Williams Opens New York Office

NEW YORK CITY—E. T. Williams, well-known refrigerating engineer and designer of automatic refrigerating systems, has opened offices at 51 E. 42nd St. here, where he will engage in the general practice of engineering consultant and adviser.

Aids in Making Scientific Tests

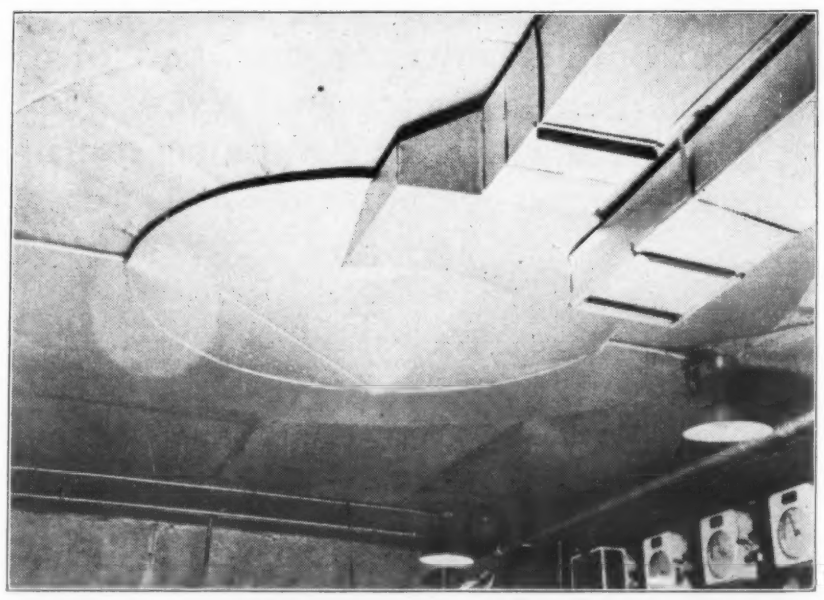


Fig. 2—Mushroom exit for air, intake air duct, and position of metastatic thermo-regulator on ceiling in center of one of Westinghouse test rooms.

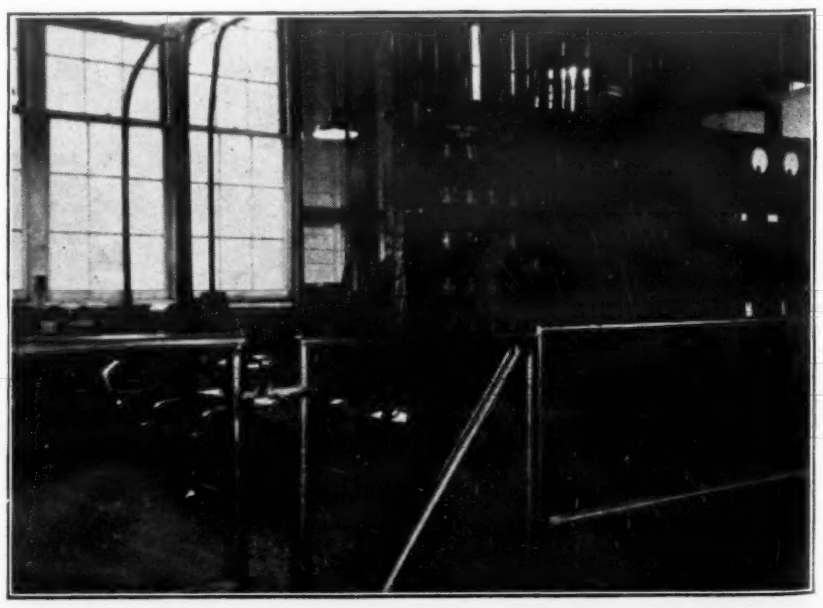
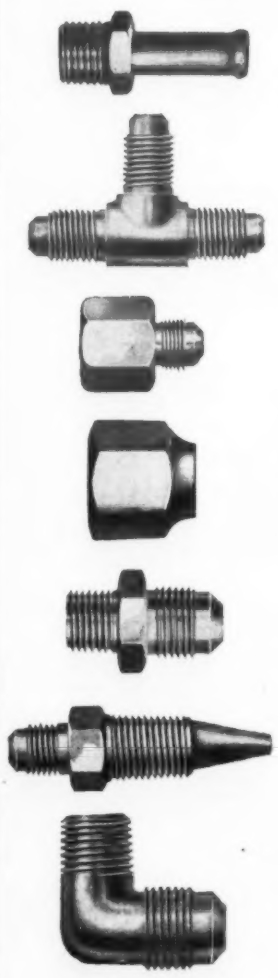


Fig. 3—Distribution board and control panel in laboratory power plant.

PROGRESS



The history of refrigeration is one of progress to perfection — From the earliest models of refrigerators to the present day units there has been a steady improvement in processes.

As the art of automatic refrigeration developed it entailed close study on the part of manufacturers of fittings — (a refrigerator is only as good as the sum of the excellence of its components) — and Commonwealth, by reason of its interest in refrigeration from the inception of the industry, has contributed its quota of development.

Here at Commonwealth we have, for more than 20 years, specialized on the design and production of Seepage Proof Fittings "Built Right to Stay Tight" and have always enjoyed the confidence of leaders of the industry.

Every type, style and size of refrigeration fittings is made in our plant, every piece 100 per cent inspected—each fitting an exact duplicate of its class, interchangeable on any job for which it was designed.

In addition to standard fittings we make an immense variety of Specials to order. Send your prints, sketches or samples for prompt quotations.

COMMONWEALTH BRASS CORPORATION

Commonwealth at G. T. R.R. Detroit, Mich.

$30,000 in Awards Offered by Leonard In Midsummer Drive

DETROIT — Leonard Refrigerator Co. this week opens its mid-summer selling campaign, which will last until the middle of September, and which will center about the $30,000 "Play Ball" contest in which the entire Leonard retail selling organization will participate.

The sales drive will be supported by a heavy newspaper and billboard advertising campaign, and a promotional program featuring several new sound films.

The "baseball" theme will provide the basis for both the national race and for the contests that the individual distributors will sponsor in their own territories.

For contest purposes the Leonard organization has been divided into 10 "leagues," in each of which there are an equal number of distributors. In order to guard against unfairly handicapping any of the entrants, the national contest has been set up as a race against quota.

Each sale of Leonard-made equipment counts toward a prize in the contest. Depending on the type of Leonard refrigerator or water cooler sold, the "player" is awarded tickets entitling him to one, two, three, or four "bases." To qualify for one of the hundreds of merchandise prizes offered in the national contest, the salesman must secure four tickets—four "bases." Having made sales totaling four bases, the player may immediately trade his tickets for one of the merchandise prizes.

Approximately 300 cash prizes, ranging from $5 to $500, have also been offered as inducements in the national contest. To be considered for most of the cash prizes, retail men must have made sales totaling eight bases and must have been in the service of one of the league-leading distributors.

At the end of the second, fifth, and seventh weeks of the contest, the 25 Leonard salesmen having earned the greatest number of bases will be declared members of the "Fence Busters' Club," and will be rewarded with merchandise prizes by Vice Presidents H. W. Burritt and H. G. Perkins, and Sales Manager Godfrey Strelinger. A salesman able to gain membership in the Fence Busters' Club for each of these three weeks is to receive a watch as a gift from President George W. Mason.

Retail salesmen are not the only contest participants eligible for awards. The most active wholesale representatives for the three leading distributors in each league will be eligible for cash prizes. Merchandise prizes, personally presented by Advertising Manager Sam Mitchell, will go to the 10 pennant-winning distributors.

In order that the individual territorial contests and the various units of the national contest proceed smoothly, a contest secretary—also eligible for prizes—has been appointed by each of the distributors.

Features of Coming Issues

August 9
TVA

Report on progress made in selling TVA appliances in the Tennessee Valley, with dope on the "ins" and "outs" of the situation as regards dealers and distributors. View of the situation from the standpoint of the planners and executors of the program; interviews presenting their aims and purposes.

August 15
Commercial Installations

To contain detailed "how-it-was-done" information on, and pictures of, recent installations of refrigeration equipment in food marketing and food serving establishments.

August 22
Service

Authoritative, practical articles and charts on how to service faulty seals, expansion valves, controls, and motors. A service manual for an "orphan" refrigerator. A report on how cabinets and finishes are repaired.

August 29
Air Conditioning

Detailed reports of how particular installations have been made, accompanied by pictures and diagrams, and emphasizing features which individualize each job. Stories about practical experience with actual installations.

September 5
Orphan Machines

Revised list of orphan electric refrigerators with all available information regarding each defunct concern, and the disposition of its patents, patterns, stock of parts, etc.

September 12
Commercial Specifications

Complete specifications on all compressors for commercial refrigeration applications including new machines brought out since the publication of last set of commercial machine specifications in March 14 issue of ELECTRIC REFRIGERATION NEWS.

September 19
Inside the Refrigerator

Pictures showing the *inside* of various refrigerator cabinets now on the market, with captions emphasizing differences in arrangement. An article will discuss the history of the art of interior decorating as applied to refrigerator cabinets.

September 26
Air Conditioning

More how-to-do it factual stories about actual installations. Results of tests. New humidifying equipment for winter use.

Apartment Renovation Campaign Opened By N. Y. Edison

By Elston D. Herron

NEW YORK CITY—In an effort to boost its sales of electricity, the New York Edison Co. here is conducting an "apartment renovation" campaign in which it offers suggestions to apartment house owners for modernizing their buildings—the remodeling to include installation of various electrical conveniences throughout the quarters.

Representatives of the utility, according to P. L. Lorch, who supervises the company's refrigeration promotion, are making a canvass of owners, showing them sketches prepared by Edison draftsmen which give an idea of how apartments can be renovated at a reasonable cost to attract new tenants and perhaps bring higher rentals.

While this produces some sales of electric refrigerators, sales promotion on the latter is only one unit in the entire program. New York Edison, in conjunction with the United Electric Light & Power Co., does, however, have a year-'round activity on promotion of refrigeration alone.

The two utilities serve only Manhattan and the Bronx in New York City, so this promotion (they do not sell refrigeration) is confined to these sections.

The boroughs are divided into districts, in each of which the power companies have a district agent. He visits business establishments in his section, studies their electrical needs, and attempts to develop a "first interest" in a certain piece of equipment.

When the district man has discovered a store which needs commercial electric refrigeration, and has discussed the matter with the proprietor, name of the prospect is turned over to the refrigeration promotion department conducted by Mr. Lorch.

A representative of the refrigeration department then calls on the prospect, and in one or a series of calls endeavors to interest the prospect to such an extent that he will ask for prices. When that stage is reached, his name is sent to several distributors in New York, who send their own salesmen to complete the deal, if possible.

The prospect's name is sent to several distributors simultaneously, Mr. Lorch explains, unless the man has expressed to the utility representative a definite preference as to make of equipment. Then only the distributor for that make is notified.

An entirely separate crew of men from the utilities' refrigeration promotion division works on sales to apartment houses. These canvassers, says Mr. Lorch, are versed in both refrigeration and real estate. While confining itself to apartment owners, this staff follows much the same procedure as the commercial men already described. In its contacts, it makes extensive use of pictures and testimonial letters.

Names of apartment house prospects are supplied to local distributors in two forms. First is the "lead" class—prospects believed by the utility men to be definitely interested in refrigeration. Second is the "potential users" group—apartment buildings which do not have electric refrigeration, but whose owners have not been cultivated or have not shown any serious interest in refrigeration.

NRA To Hear Radio Makers' Code Plea

WASHINGTON, D. C.—Public hearings on the application of the Radio Manufacturers Association for exemption of the radio manufacturing industry from the approved code for the electrical manufacturing industry will be held starting at 10 a. m. July 23 in the Rose Room, Washington hotel here.

The Radio Manufacturers Association, in asking to be exempted from the general code for electrical manufacturers, declares that it is seeking a separate code of fair competition because it believes in self-government of industry, because it believes in industry independence, because of labor differences in the radio and electrical trades, because it believes less expensive and more efficient administration could be accomplished under a separate code, because the trade practices of the electrical manufacturers code do not meet the special problems of distribution and merchandising in the radio field.

Colvin-Templeton Uses Promotion Newspaper

SAN FRANCISCO—Named "Kitchencraft," and called "the housewife's most interesting newspaper," an eight-page publication the size of a metropolitan daily was recently issued by Colvin-Templeton, Inc., Westinghouse distributor here, and distributed to 300,000 persons in the San Francisco area.

Content of the promotion piece comprises articles on electric refrigeration in general, testimonials of Westinghouse users, story-form presentations of Westinghouse features, cold cookery recipes, and advertisements.

'Barrel o' Fun' Prize Contest Features Kelvinator's New Sales Campaign

DETROIT—As Kelvinator Corp. swings into the fourth quarter of its fiscal year, it is sponsoring a $50,000 "Barrel O' Fun" prize contest for its dealers and retail salesmen, with an aim toward hoisting sales volume out of its normal late-summer slump. Wholesale salesmen and contest managers are eligible for prizes, too.

The competition, largest ever held by Kelvinator from the standpoint of money outlay, will be backed by a heavy newspaper advertising campaign, continuation of the company's magazine advertising, and use of a new billboard poster emphasizing the buy-now idea. Weekly prize awards at the Kelvinator Century of Progress exhibit are also being made to heighten interest in the product during the contest period.

For the contest, which began July 2 and will close Aug. 25, the country has been divided into 14 districts. Weekly prizes will be awarded by districts, the share for each to be determined by sales in that district during the past seven-day period. In all, there will be 100 prizes per week, plus a weekly (except the final week) grand prize of $100, and a weekly award of a trip on the factory's "Mystery Cruise" this fall.

At the conclusion of the eight weeks, one man in each district will receive a Plymouth coach, and there will be a final grand prize of $1,000 in cash. In addition to this schedule of prizes, others will be awarded retail men by many Kelvinator distributors.

Sale of any Kelvinator product—household and commercial refrigeration, air conditioners, and oil burners—counts in the competition. Last four weeks of the latter coincide with the final month of the Kelvinator DeLuxe contest, in which retail men will receive trips on the Mystery Liner.

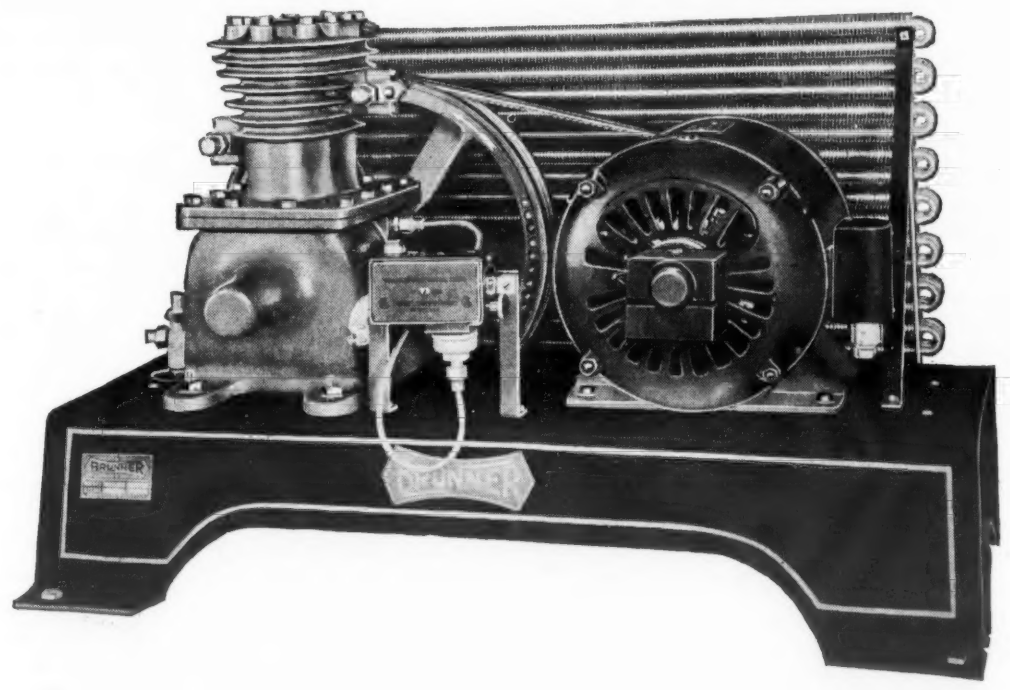
For Kelvinator wholesale men, there will be weekly prizes of $100, $50, and $25 during the first six weeks of the contest. Seventh week, there will be an award of a Mystery Cruise trip, and at the close of the eighth week the grand prize, a Plymouth, will be given to some wholesale man. There will be a total of 40 merchandise and four cash prizes for campaign heads.

Combining explanation of contest rules with pep messages is the "barrel" sent to salesmen at the opening of the drive. It is a cardboard cylinder resembling a barrel. Extending through a slit in its side is a paper flap, which, when pulled, brings out a four-foot strip of copy.

The sheet shows smiling Kelvinator executives—head photographs topping pen-drawn bodies—talking to each other, explaining the campaign, and giving short fight talks to contestants. Typical shots: Vice President Burritt applauding Vice President Perkins as the latter pours dollars into a barrel. Cheers Mr. Burritt: "Great work, Mr. Perkins. That makes it $50,000." Advertising Director Woodcox saying, "I've got a big advertising and sales promotion program to help you." Commercial Manager Harlan slapping Domestic Manager on the back, and saying, "Remember, Pete, the boys who sell commercial and oil-burning equipment are in this contest, too."

Prepared as a sales promoter in small towns is a new issue of Kelvinator's Home News, eight-page picture paper.

AGAIN
BRUNNER *Sets the Pace*
OF PROGRESS



New Improved Assemblies for BRUNNER Units

• Not content with the fact that the success of BRUNNER Refrigeration Units has made ours the fastest growing name in the industry . . . Brunner Engineers are ever on the outlook for an opportunity to better BRUNNER equipment. Despite the fact that hundreds of users answered . . . "No improvements possible" . . . BRUNNER found a way, and forthwith announces a *New* and *Better Assembly* for all BRUNNER units.

• Sturdier, smarter in appearance, the new base is pressed steel, electrically welded. Condensers are reinforced. The entire assembly is more rigid than former models. Naturally, we say now more than ever . . . before you buy any refrigeration unit . . . see the BRUNNER line. Six dependable compressors . . . seventeen efficient highsides . . . air and water cooled . . . gas engine or electric . . . 1/6 H. P. to 3 H. P. Coupon brings full details.

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BRUNNER MANUFACTURING CO.,
Utica, N. Y., U. S. A.

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SERVICE

Service Instructions on Absopure Commercial Condensing Units

General Service Instructions May Apply to Other Makes, As Compressor Is Typical of Commercial Unit Design

ABSOPURE commercial condensing units, built by the Absopure Refrigeration Corp., Detroit, up until the early part of 1931 when that manufacturer went into receivership, were of the two-cylinder, reciprocating type, using methyl chloride as a refrigerant. Since the Absopure compressors are of a typical commercial design, the following service instructions will be found useful not only to service men working with the many existing Absopure machines, but also to those maintaining other similar compressors.

Absopure commercial compressors were built in two different designs. Types "E" and "F" have separate cylinders and were furnished for fractional horsepower commercial installations, while types "H", "I", and "J" have two cylinders both cast in a common block. The latter are used for heavier duty.

Following service instructions apply to types "E" and "F". Next week the NEWS will present similar data for the larger models, and the following week detailed instructions on servicing the various accessory equipment will be published.

Leaks

The first indication of a leak in a commercial system is usually the failure of the condensing unit to shut off. A system that is short of refrigerant will continue to produce refrigeration, but do it by running continually or by shutting down for only a very few minutes between long runs.

Other systems hooked up differently will first indicate a shortage of refrigerant by lack of refrigeration at one or more of the freezing units.

Listen to the float valves in the float type freezing units and to the expansion valve. It is not hard to distinguish the difference between the sound of a valve passing methyl chloride in liquid form, and one passing vapor.

The larger Absopure commercial condensing units have receivers that are fitted with gauge glasses. By slightly opening the valves above and below the gauge glass, one can readily see the liquid level in the receiver.

The liquid level in the receiver should be between 1 and 2 in. from the bottom of the receiver when the system is in normal operation with the freezing units cold.

Locating and Repairing Leaks

One of the surest ways of locating leaks in a commercial refrigerating system that has been in operation for a time is to look for oil around the joints, connections, gaskets, etc.

When the system is installed, the outside of every connection and joint should be perfectly clean and dry just so that leaks can be found in this way.

Oil in small quantities circulates through the entire system, and if there is a leak at a connection or any other place, a small amount of oil will appear and indicate that there is a leak at that point.

The usual test for leaks is to cover the joint with a thick lather made from shaving soap. A leak will be indicated by small bubbles coming through the lather.

When a leak is discovered, the first thing to do is to remove the pressure from that part of the system. Valves are provided at various points in a commercial system, and these can be shut off, isolating the part of the system that is to be repaired.

If the leak is at a flare joint, do not attempt to repair it by tightening the nut. The tubing should be cut off, and a new flare made. The seat should be examined to see that it is free from dents and tool marks. The utmost care must be taken in making flare connections. If they are properly made, they will hold indefinitely.

If the leak is at the cylinder head, new gaskets should be installed. If gaskets either under the line valves or on the cylinder head have been leaking for some time, even slowly, it is usually useless to tighten the bolts. New gaskets are needed.

If the leak is around a line valve on a condensing unit, see that the valve is fully open. The line valves all have double seats, and they have to be wide open to hold pressure. The line valves are made with packing glands, but these glands are not designed to hold methyl chloride permanently.

If there is oil or any other indication of a leak around the head of a float type freezing unit, see that the head bolts are tight. A leak around the head gasket on Nos. 5, 6, or 8 Absopure freezing units can usually be repaired by tightening the bolts.

Leaks around the heads of commercial or large household freezing units should be repaired by renewing the gasket.

When a system is found that is short of methyl chloride, it indicates that there is a leak in the system. The entire system must be checked. Do not repair the first leak you find and be satisfied that you have located the trouble.

Compressors 'E' and 'F'

The "E" and "F" compressors are both of the twin-cylinder reciprocating type. The "E" compressor uses the same cylinders, pistons, rings, suction and discharge valves, cylinder heads, and top line valves as are used on the single-cylinder "B" compressor.

The other parts of the compressor are the same as are used on the "F" compressors. The "F" compressors use the same cylinders, etc. as are used on the single-cylinder "C" compressor.

This interchangeability of parts between the "B", "C", "E", and "F" compressors reduces the number of parts needed to make repairs.

The compressor should run smoothly and quietly and pump a pressure of at least 200 lbs. and hold it with very little drop in pressure.

Testing the Compressor

The "E" and "F" compressors have separate cylinders and top line valves. It is therefore possible and best to test the cylinders separately.

To test the compressor, isolate the compressor from the rest of the refrigerating system by closing the suction line valve on the side of the compressor and the top line valves on the cylinder heads and test it pumping air. All these line valves should be closed tightly by turning the stems in as far as possible.

Remove the plugs from the ports on the line valves and let the compressor run for a few revolutions. Screw a pressure gauge into the port on one of the top line valves.

Keeping your hand on the switch, let the compressor run and watch the gauge. The pressure should go up without hesitation. When it reaches 200 lbs., stop the compressor and watch the gauge. A slow drop in pressure does no harm.

If the gauge needle drops rapidly, it indicates a leaking discharge valve; if it fails to pump up to 200 lbs., or pumps very slowly, the suction valve or possibly the rings are at fault. Test both cylinders the same way.

Repair. After locating the failing part, it can be repaired or replaced as described in the instructions given later in this article for that particular part.

Absopure Compressor

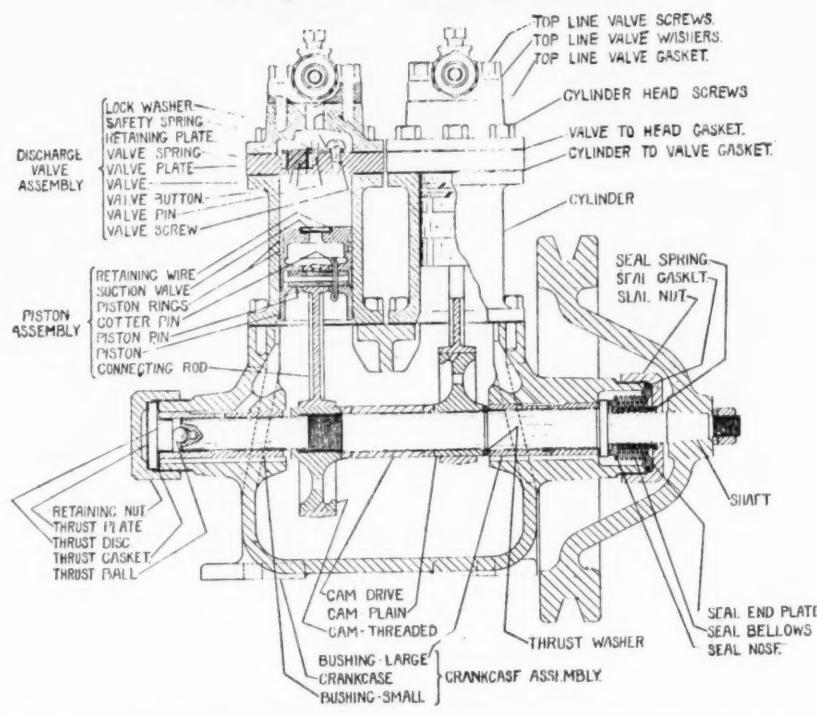
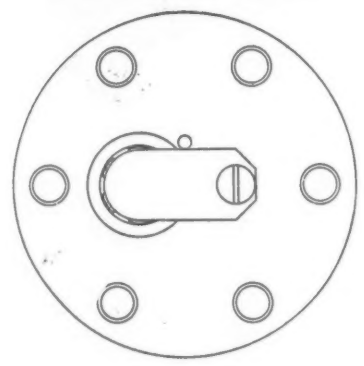


Fig. 1. Sectional diagram of Absopure series "F" compressor, used for small commercial refrigeration. Larger machines will be treated next week.

Discharge Valve



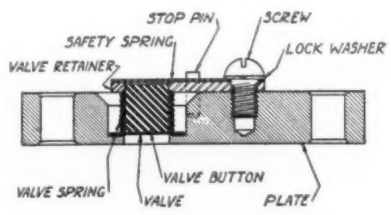


Fig. 2. Discharge valve on an Absopure commercial compressor.

Discharge Valve

The discharge valve, as shown in Fig. 2, acts as one dividing line between the high pressure side and the low pressure side of the system. It admits methyl chloride vapor as it is compressed by the piston, and closes automatically, keeping it in the high pressure side of the system.

There are two springs in the discharge valve. The small coil spring has a very light tension, as its only purpose is to close the valve just as soon as it is through admitting vapor from the low pressure side of the system.

The second spring is a flat stiff one, made of spring steel, and its only purpose is to provide additional lift for the valve on those occasions when the compressor pumps liquid methyl chloride or oil.

Testing Discharge Valve

The discharge valve can best be tested for a leak before it is removed from the compressor. This procedure is described above under "Testing the Compressor."

A clicking noise in the discharge valve is usually caused by a rough edge on the valve disc itself, or a rough surface in the counterbored hole in the valve plate that acts as a guide for the disc.

Examine the seat of the valve for foreign matter that would hold the valve open. See that there are no marks on the seat that would cause the valve to leak. Examine the valve disc to see that it is flat, smooth, and clean.

Repairing a Discharge Valve

If the valve was held open by foreign matter of some kind, wash the entire assembly thoroughly with gasoline or carbon tetrachloride.

If the seat is clean, bright, and free from scratches, and the disc damaged in any way, the disc can be replaced. If the seat is damaged, the entire assembly should be replaced.

To overcome valve clicking, replace the disc, plate or entire assembly, as necessary.

Note: There is an equal chance of an intake or discharge valve clicking. Replacing either valve will usually determine which one is making the noise.

Intake Valve

The intake valves are located in the top of the pistons. One is shown on Fig. 3. It opens on the downward stroke of the piston, and allows the cylinder to fill with methyl chloride vapor from the crankcase.

On the upward stroke of the piston, the valve closes by its own weight and the pressure above it, and the piston compresses all of the vapor in the cylinder, forcing it through the discharge valve.

Testing Intake Valves

The intake valve can be tested most satisfactorily before the compressor is taken apart. The indications of a failing suction valve are given under "Testing the Compressor."

A small piece of foreign matter of any kind can hold the intake valve open and stop that cylinder from pumping. If a cylinder fails to pump properly, examine the disc and the seat.

Both should be clean and bright where they make contact. If the edges of the disc are rough and sharp, or if the counterbore in the top of the piston is rough, the disc may be retarded in its movement enough to cause a clicking of the valve. The intake valve disc can be removed readily by taking out the valve retainer spring.

Repairing Intake Valves

If the valve was held open by foreign matter, it should be cleaned. It is not good policy to use either gasoline or carbon tetrachloride to clean the piston unless the entire piston and connecting rod assembly is out of the compressor, as some of the cleaning medium might get into the crankcase and dilute the oil.

If the counterbore in the top of the piston is rough or badly scratched, it may be necessary to replace the piston assembly.

Note: The early models of Absopure compressors had suction valves that screwed into the top of the piston. This valve can be removed and replaced readily. Do not use a wrench to unscrew it, as there is danger of twisting the connecting rod. Use a center punch, and a light hammer to loosen or tighten.

If the disc has rough edges, or is damaged in any way, it should be replaced.

Piston Assemblies

There are, of course, two piston assemblies in each "E" and "F" compressor. The two are the same, except for the cam. A piston assembly consists of a piston, two piston rings, a suction valve disc and disc retainer, a wrist pin and cotter key, a connecting rod, and cam.

Fig. 1 is a drawing of an "F" compressor. Examine the cams on this drawing, and note that one is threaded and one is not, and that there is a spacer between them. The spacer is notched into both cams so that when the three parts are on the shaft, they are in effect one part.

These assemblies convert the revolving movement of the camshaft to the reciprocating movement that compresses the vapor in the cylinders. The pistons must move smoothly in the cylinders, and the rings seat against the cylinders on their entire circumference.

The wrist pins should allow the pistons to move freely, but there should not be any play. The cams should turn freely and smoothly in the connecting rods, but must not be at all loose. The connecting rods must be perfectly straight so that the pistons are at exactly right angles to the shaft.

Testing

The most important tests are the alignment of the connecting rod and the piston, and bearing surface of the cam.

To check the alignment of the piston, use the cylinder as a gauge. This check is made to be sure that the piston itself is at exactly right angles to the camshaft.

Remove the six cap screws that hold the cylinder to the crankcase and the gasket from between the two parts. Due to the play between the cam and the connecting rod, the cylinder can be rocked a little from side to side.

Holding your fingers over both flanges, rock the cylinder and see that it lifts on both sides the same amount. If it lifts on one side and will not lift on the other, or if it can be lifted higher on one side than on the other, the alignment is not correct.

Check the alignment carefully before trying to straighten the rod, as it is very seldom a rod will be found that is not straight and true.

To straighten a rod, leave the cylinder on the compressor as when you test the alignment, and bend the rod by hand a very little at a time until checking tells you it is true and straight.

The bearing surface of both the cam and connecting rod should be smooth, clean, bright, and free from scratches or scores of any kind.

Unless one of these parts is worn, the clearance between the two will be right. If either or both parts are worn so that the fit is loose, the piston assembly should be replaced. Be sure the cam turns freely and smoothly in the connecting rod.

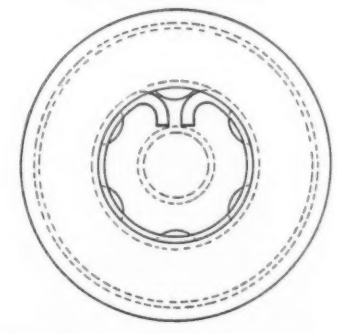
If the wrist pin is loose enough that there is appreciable play, the entire assembly should be replaced.

Examine the piston and cylinder for scratches and scores, as either indicates that some foreign substance got between these parts and started the scoring.

Parts that are badly scored should be replaced. Slight marks can usually be polished with a very fine file or emery cloth, so that they will work

(Concluded on Page 17, Column 1)

Intake Valve



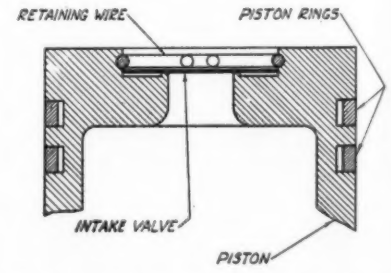
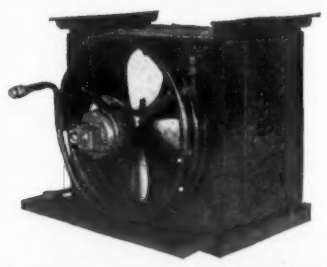


Fig. 3. Intake valve located in the top of Absopure pistons.

KRAMER



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is really a simple device. It has a separate control for each operating function, and each is plainly marked so the operator does not become confused and defrost the evaporator when she intends to freeze desserts.

THE AUTOMATIC RECLOSING CIRCUIT BREAKER COMPANY
1300-10 Indianola Avenue, Columbus, Ohio

Service Operations on Absopure Small Commercial Units

(*Concluded from Page 16, Column 5*)

satisfactorily. Be very sure to clean thoroughly after polishing job is finished.

Repairing Piston Assemblies

To remove the piston assemblies, first take the compressor off of the condensing unit, and fasten it firmly on the work bench or in a vise.

Remove the cylinder heads, discharge valves, and the cylinders first. Insert a wood block in the crankcase, and, facing the flywheel, turn the flywheel counter-clockwise.

Be sure that the wood block is in such a position that the arm of the connecting rod has no strain on it. Only the lower bearing of the rod should touch the block. Otherwise, the rod might be bent.

The rear cam is threaded on to the camshaft with a right-hand thread. It may be necessary to put considerable force on turning the flywheel to loosen the cam.

As soon as the cam is started, the shaft will turn freely. Before turning the flywheel over three or four revolutions, loosen the seal nut with a wrench. Unscrew the camshaft from the cams and the seal nut alternately or together, and the shaft, flywheel, and seal can be removed together.

After the shaft is removed, the piston assemblies can be lifted out of the crankcase. When you remove the piston assembly, you will find the thrust washer in the bottom of the crankcase. It is a hardened steel washer that goes between the front cam and the small shoulder on the shaft that is the back of the front main bearing.

There is a single ball thrust in the back of the rear main bearing. If the ball fell out of this bearing when the shaft was removed, replace it before reassembling.

To reassemble the compressor, start the shaft through the front main bearing so that it projects about ¼ in. Hang the thrust washer on the end of the shaft, and see that the thrust ball is in the rear main bearing.

Take the front piston assembly with the cam in place in the right hand, and the hub of the flywheel in the left hand. Start the shaft through the front cam, slip the spacer over the shaft, and start the shaft through the rear cam. See that the prongs on the spacer are inserted in both cams so that the cams are on opposite sides of the shafts.

Be sure that the large hole in the rear cam is toward the flywheel. As soon as the threads engage, start screwing the shaft into the cam. Insert the wood block in the crankcase to keep the cam from turning.

When the shaft is partially screwed into place, start the seal nut, and screw the shaft into the cam and the seal nut onto the crankcase at the same time. The seal nut must be really tight. An 18-in. monkey wrench serves the purpose very well.

The seal spring holds the camshaft firmly against the thrust ball. There should be about 1/32 of an inch clearance between the thrust washer and the end of the front main bearing. Insert the end of a screw driver between the hub of the flywheel and the seal nut, and see that there is a proper end play to the shaft.

After the piston assemblies are in place, the cylinders, discharge valve assemblies, and the cylinder heads can be reassembled, and the compressor tested and put in operation.

Cleaning and Oiling the Compressor

Whenever the compressor is taken apart for any reason, the oil should be removed and discarded. Before the compressor is reassembled, the parts should all be thoroughly washed in carbon tetrachloride or gasoline. The former is preferable, as there is no fire hazard, and it is a better solvent of oil.

As soon as the parts are clean, they should be oiled with refrigerating oil to prevent rusting. On a damp day, if all the oil is removed while cleaning, they may rust in a very few minutes.

Before reassembling the cylinders to the crankcase, fill the compressor to between ⅛ and ¼ in. of the bottom of the camshaft.

After a compressor is assembled and tested, the inlet and outlet connections must be capped to keep the air out of the compressor.

Seal

The seal on the compressor prevents the leakage of methyl chloride or oil—both when the shaft is revolving, and when it is stopped. There is a hardened smooth face on a shoulder of the shaft against which a bearing of self-lubricating metal is held in place. The surfaces of these parts should be perfectly smooth where they make contact.

The self-lubricating bearing is sealed to the crankcase with a flexible metal bellows. One end of the bellows is soldered to the seal bearing or "seal nose," as it is commonly called, and the other end is soldered to the seal ring which is sealed to the crankcase with a gasket.

The seal spring inside of the bellows holds the seal nose firmly against the seal face of the shaft. A McKim gasket between the end of the crankcase boss and the seal ring is compressed by the seal nut, and forms a tight joint.

The usual indication of a seal leak is oil under the seal on the floor, baseboard, or a few drops of oil on the bottom of the seal nut. Vaseline is put inside the bellows when the seal is assembled, and a little of it may run out when the compressor is warm. This must not be confused with oil that indicates a seal leak.

If you believe there is a seal leak, but are not sure, proceed as follows to test the seal:

Shut off the unit and close both the suction line valve and the top line valves tightly. Connect a service tank of methyl chloride to the port in the suction line valve. Open the valve on the service tank so that there will be high pressure from the service tank in the compressor.

If the leak is very bad, you may hear it hiss when the pressure is applied. In most cases, you should use soap lather to be sure. Take a small rag, soak it with lather, and wedge it between the seal nut and the flywheel hub in the form of a "U," leaving only the top open.

Apply lather to the opening at the top where it can be seen, and bubbles will come through the lather if there is a leak. Take plenty of time to watch for bubbles, as the leak may be a very small one.

Repairing Seals

Remove the shaft assembly as described for removing the piston assembly. The camshaft, flywheel, and seal assembly are taken out of the compressor together. Remove the flywheel from the shaft, and slip the seal assembly off the shaft.

Examine the end of the crankcase boss and the seal gasket for possible places of leakage. It may be that the leakage was past the gasket, and a new gasket will stop the leak.

If the face of the shaft is smooth and bright—even though thinly covered with copper—and the face of the seal nose smooth and free from scores, it would indicate leakage elsewhere.

Before deciding to replace a shaft on account of marks on the seal face, clean the face thoroughly, cut a hole in a piece of fine emery cloth, and put the end of the shaft through it so that the emery is against the seal face. Put the seal nut on the shaft backwards, and use it as a lapping block, turning the shaft backwards and forwards. If the marks on the shaft are removed, it need not be replaced. The point of a lead pencil run over the face of the shaft will quickly tell you whether or not it is smooth.

If the face of the seal nose is scored or rough, it is best to replace the whole seal assembly. The seal nose can be lapped on a true razor hone with a slow rotating movement, and made to hold. It is a very particular job, and often, even though care is taken, is not successful.

If the seal gasket is removed from the seal nut, it should not be used again under any circumstances, as it will be almost impossible to make it hold.

Before reassembling a seal to a compressor, put a small amount of vaseline in the seal around the seal spring. Be very careful that none of it gets to the part of the crankcase that is under pressure at times, as it will eventually find its way to the compressor valves and cause trouble.

When a new seal assembly is to be installed, always clean the shaft carefully before assembling the compressor. After using emery cloth, clean the parts thoroughly, as emery will cause trouble if it gets into the compressor. If a new seal is installed, let the compressor run for half an hour before testing it. This gives the seal a chance to seat itself.

Flywheel

The flywheel serves the dual purpose of a drive pulley and flywheel. It is grooved for a V-type belt, and is held on the shaft with a nut and lock washer that presses the flywheel onto a taper.

The flywheel can be readily removed with a flywheel puller. Apply the puller, and, if the flywheel does not start immediately, tap the puller screw lightly with a hammer, and tighten the screw a fraction of a turn at a time.

End Thrust Assembly

The end thrust assembly consists of the cap or retaining nut, the thrust plate, the thrust plug, the thrust ball, and a gasket.

This assembly provides a leak-proof cap for the outside end of the rear main bearing, and a ball thrust to withstand the pressure on the crankshaft of the seal spring.

The thrust ball fits the end of the camshaft and rides against the hardened and ground steel thrust plug.

About the only inspection ever needed on this part is to test it for leaks. Use soap lather around the cap, and watch for bubbles. When you have the compressor apart for other reasons, or when you have removed the retaining nut to replace a leaking gasket, examine the thrust ball and thrust plug for undue wear.

The thrust gasket is made of soft metal. The thrust plate must be tight against it at all times.

The metal gaskets used on Absopure units should never be used more than once. If the leak cannot be stopped readily by tightening the retaining nut, shut off the top and bottom line valves, let the pressure out of the crankcase, remove the retaining nut, and replace the gasket.

Gaskets

There are two types of gaskets used on Absopure compressors. One is an all-metal gasket made from lead and tin. It is soft enough that it flows into the tool marks on the part with which it is in contact.

The other gasket used is of the asbestos type, and is more compressible than the metal gasket. Either gasket makes a satisfactory seal. When the asbestos gasket is used, it should be tightened a few hours after it is originally installed. Gaskets of this type may stick to the metal to some extent after they have been in place for a long time.

Before reassembling a compressor, be very sure that there are no shreds of gasket material stuck to any of the parts, as they are sure to cause leaks.

No gaskets of either of the above types should ever be used a second time. When you take a compressor apart, always reassemble it using new gaskets.

A third type of gasket is used between the seal assembly and the crankcase. This is a McKim copper-asbestos gasket. When replacing a seal gasket, always put the smooth side of the gasket against the end of the crankcase boss.

If the seal nut and seal assembly are taken off of the compressor, and the gasket appears to be in good condition, it can be used again.

Service on Other 'Orphans'

Help to service men on other makes of obsolete refrigerators is contained in the following past issues of the News:

Absopure household, March 25, 1931.
Majestic hermetic, Aug. 16, 1933.
Allison, May 30 and June 6, 1934.
Welsbach household, June 13, 20, and 27, 1934.
Rice household, July 4, 1934.
Wayne, July 11, 1934.

Woman Who Heads Up Service Firm Tells How to Build Business

By Elston D. Herron

KANSAS CITY, Mo. — When a woman runs an independent service company, that's news!

The company is the Pollack Refrigeration Service Co., here, and the woman is Miss Jane Merritt. When your NEWS reporter called, the temperature was 103, and freshly marcelled Miss Merritt sat at her desk, mopping her face with a handkerchief as she cracked out orders to the service men as they came in, and diagnosed service troubles over a telephone that would not stop ringing.

Miss Merritt is not the proprietor, but she manages the company. D. D. Pollack, head of the service department of the old Kelvinator branch in Kansas City, organized the business several years ago and claims it was the first independent service concern in the city. Most of the time, lately, he has spent establishing service departments in distributorships and dealerships in the Midwest. When he is home, he supervises his company's work.

"We're set up here to service any make of refrigeration system except those with sealed units," said Miss Merritt. "We don't have any trouble getting replacement parts from any company except Frigidaire, so when we need a new part on a Frigidaire machine, we substitute a part of another make.

"I think manufacturers hurt themselves by making it difficult for independent companies to get parts for their machines. Buyers resent being told that if they want service they have to buy it from one particular company's own local outlet."

In hot weather, a good part of the Pollack company's work is done on household refrigeration, but the backbone of its business is assembling, installing, and servicing commercial systems, according to Servicewoman Merritt.

"For example," she explained, "we get a call from a dairyman, saying he wants a certain box equipped with electric refrigeration. Our men make a survey of the requirements, and set a price on the job. If the dairyman approves of the price, we go ahead with construction of the system.

"We buy a motor, compressor, valves, and fittings, build our own condenser, then assemble all this equipment at our shop before taking it out to the dairy. We give a year's service on any installation like this."

When the year is up, owners generally call on the Pollack company for whatever service may be necessary. All work is charged for on a time-and-material basis, because, believes the management, when a fixed charge is made for service over a long period of time, small service companies frequently get the business by under-bidding the larger operator on the contract.

"These small service companies are dying out here, because they haven't in many cases, given high-quality service. They could get one call from a user, but they seldom got a call the next time service was needed," said Miss Merritt.

Why does the Pollack company get service work which might logically go to manufacturers' distributors, dealers, or branches? For three reasons, believes the manageress:

First, there is the reputation Mr. Pollack built for himself as a service man in his Kelvinator connection. Second, occasional dissatisfaction of users with work done by official outlets of a manufacturer. And third, the fact that Pollack's men are pushed to the limit to do each job in a minimum of time, and so make the charge less than it might be from the authorized service department.

Actually, hourly charge, however, is the same as that of manufacturers' representatives, stated Miss Merritt. The company charges $1.50 per hour per man for labor, the time being that which elapses from the time a service man leaves the shop until he returns.

"How many service men do you have working?" she was asked.

"We have six, and we would have six more, but don't know where to find them—good ones, that is. There are dozens of men available who know *something* about electric refrigeration, but not *enough*. We've found that it pays to have capable men; in the long run, it costs us money to hire men that aren't really expert."

Miss Merritt cannily questioned your reporter before the interview started, to assure herself that he was not a space salesman from a local paper. During the examination, she remarked that the company gets more business from its modest advertisement in the telephone directory's classified section than from all the newspaper advertising it has ever used.

Pratt Issues Catalog of Service Parts

SAN FRANCISCO — Clarence F. Pratt, president of the California Refrigerator Co., has just released a 36-page "Refrigeration Buyer's Guide" of replacement parts and accessories which his company handles.

Approximately 400 different items are listed in the booklet. Included are compressor parts, controls, valves, fittings, coils, refrigerants, servicemen's tools, ice trays, and all types of accessories.

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Patent 1,770,852
Patent 1,776,502
Patent 1,890,998
Other Patents Pending

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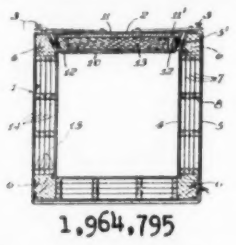
PORT HURON, MICHIGAN

PATENTS

Issued July 3, 1934

1,964,795. REFRIGERATING UNIT. Francis C. Frary, Oakmont, Pa., assignor to Aluminum Co. of America, Pittsburgh, Pa., a corporation of Pennsylvania. Application Jan. 16, 1931. Serial No. 509,283. 6 Claims. (Cl. 154—45.)

1. A refrigerator comprising an hermetically sealed unit within which is disposed bright metallic foil and a quantity



1,964,795

of activated alumina adapted to prevent impairment of the heat reflecting efficiency of the bright metallic foil when said unit is utilized for maintaining a temperature at or below ordinary room temperature.

1,964,822. METHOD AND MEANS FOR PREVENTING RAPID FORMATION OF FROST ON REFRIGERATING CONDUITS. George H. Klippel, Syracuse, N. Y. Application June 17, 1932. Serial No. 617,813. 6 Claims. (Cl. 62—102.)

1. In a refrigerator comprising a cabinet having refrigerating coils arranged near the top and one side wall and spaced apart therefrom forming air passages between the top and side walls and the coils, and a blower near and spaced apart from the top of the cabinet and from said coils and having its outlet arranged to discharge toward the passage between the coils and the top wall, for forcing unrefrigerated air in a horizontal direction over the coils to create an ejector action to suck refrigerated air in and about the coils upwardly into the horizontal passage against the action of gravity, said fan having its intake arranged to receive part of the warmer air current passing upwardly from the lower part of the cabinet.

1,964,831. REFRIGERATOR. Donald Rein, Houston, Tex. Application Dec. 3, 1931. Serial No. 578,720. 2 Claims. (Cl. 312—188.)

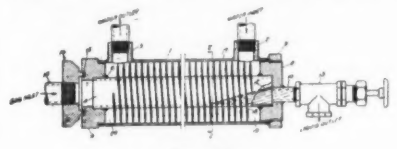
1. In a refrigerator having a food compartment, a transverse supporting bar across the front side of the compartment, a shelf slidable into and out of the compartment and having side bearings in alignment with said bar, side tracks located within said compartment and spaced from the side walls thereof and whose ends are secured to the corresponding side walls, said bearings being movable along the corresponding tracks, said shelf being formed with a framework whose outer end is formed into vertical side loops, a panel in said loops and supported thereby, said cross bar forming a support for the shelf when the shelf is in its outer position and said side loops forming a close fit against the sides of the compartment when the shelf is in its inner position.

1,964,868. PROCESS OF PREPARING METHYLENE CHLORIDE. Walter Berndt and Otto Ernst, Hochst-on-the-Main, Germany, assignors to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany, a corporation of Germany. No Drawing. Application Dec. 28, 1927. Serial No. 243,205. In Germany Jan. 3, 1927. 3 Claims. (Cl. 260—166.)

1. In the process of preparing methylene Chloride, the step of treating 3 parts by volume of a gas consisting of methyl chloride in the gaseous state with one part by volume of chlorine at a temperature between 360° C. and 380° C.

1,964,890. CONDENSER. Charles R. Neeson, New Rochelle, N. Y., assignor, by mesne assignments, to Baldwin-Southwark Corp., a corporation of Delaware. Application June 23, 1931. Serial No. 546,288. 5 Claims. (Cl. 257—246.)

1. A refrigerant condenser comprising an outer casing and an inner condenser tube spaced therefrom to provide a water



1,964,890

passage, a spiral flange construction carried by said tube and disposed within said space, means forming a water inlet and outlet whereby cooling water flows from the inlet to the outlet through said space in a spiral path, means for supporting said condenser tube by said outer casing whereby said tube and its spiral flange may be axially removed bodily from said outer casing, a head having a flange engageable with the entire end of said outer casing to provide a closure therefor and having an axial opening, one end of said condenser tube being supported in said opening, and another head having a removable flange for entirely engaging the other end of said outer casing and being provided with an axial opening in which the other end of said condenser tube is disposed, said latter head being adapted when its flange is removed to pass through said inner casing upon removal of said condenser tube.

1,965,010. APPARATUS FOR LIQUEFYING GASES. John C. Swan, Marietta, Ohio. Application July 25, 1933. Serial No. 682,046. 10 Claims. (Cl. 62—122.)

1. Apparatus for liquefying gas including a casing having a condensing chamber for receiving and maintaining gas under pressure, and a refrigerant chamber located within the condensing chamber, a multiplicity of radially disposed condensing tubes within the refrigerant chamber and having open ends communicating with the condensing chamber, and means for spraying refrigerant liquid upon said condensing tubes.

1,965,011. GASOLINE RECOVERY APPARATUS. John C. Swan, Marietta, Ohio. Application Aug. 24, 1933. Serial No. 686,525. 14 Claims. (Cl. 62—122.)

1. Gasoline recovery apparatus including a casing having an expansion chamber and a condensate chamber therein, a multiplicity of condensing tubes each communicating at one end with the condensate chamber and having a restricted opening at the other end communicating with the expansion chamber, a gas inlet pipe extending into the expansion chamber, and a pressure operated valve upon said pipe.

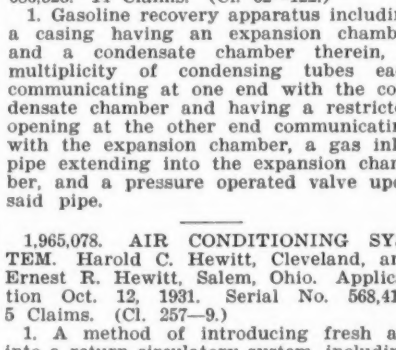
1,965,078. AIR CONDITIONING SYSTEM. Harold C. Hewitt, Cleveland, and Ernest R. Hewitt, Salem, Ohio. Application Oct. 12, 1931. Serial No. 568,410. 5 Claims. (Cl. 257—9.)

1. A method of introducing fresh air into a return circulatory system, including passing some outside air through the system whereby a heat exchange occurs between the outside air and the air in the system, then introducing the modified outside air into the system at a point in advance of that where the heat exchange occurs, and washing the air in the system between the point where the outside air enters and where the heat exchange occurs.

1,965,081. ICE MAKING APPARATUS. Joseph A. Martocello, Philadelphia, Pa. Application Sept. 14, 1931. Serial No. 562,671. 8 Claims. (Cl. 62—159.)

1,965,198. COMPRESSOR LUBRICATING SYSTEM. David E. Maccabee, Chicago, Ill., assignor to Stewart-Warner Corp., Chicago, Ill., a corporation of Virginia. Application July 7, 1933. Serial No. 679,316. 6 Claims. (Cl. 230—206.)

1. In a refrigerant compressor, a casing, a crank shaft rotatably supported in said casing, a thrust bearing for the inner



1,965,198

end of said crank shaft, said crank shaft having a passage extending therein from the inner end thereof and means for circulating low pressure refrigerant vapor and lubricant around said thrust bearing and into the passage of said crank shaft.

1,965,205. METHOD OF AND APPARATUS FOR REFRIGERATION WITH SOLID CARBON DIOXIDE. Walter L. Smith, Kansas City, Mo. Application March 12, 1932. Serial No. 598,413. 11 Claims. (Cl. 62—91.5.)

1. A refrigerator including separate refrigerant and refrigerating chambers, a closed circuit of ducts arranged for conducting gases from the refrigerant chamber in cooling relation to the refrigerating chamber, and an aspirator in the circuit for promoting recirculation of gases through the ducts.

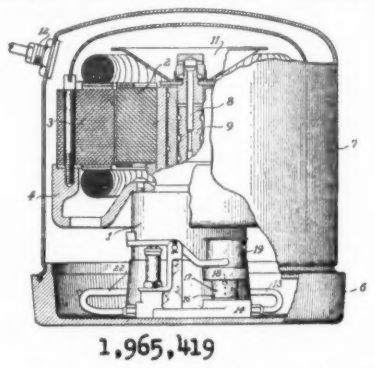
1,965,255. AIR COOLING DEVICE. Andrew J. Peabody, Tulsa, Okla. Application July 25, 1932. Serial No. 624,532. 4 Claims. (Cl. 261—30.)

4. An air cooling device adapted to be mounted on an air circulating fan of the kind used for circulating air in a room, comprising a body portion, a water reservoir thereon, means of transferring water from said reservoir to an absorbent material, an absorbent material as aforesaid adapted for the evaporation of water therefrom and positioned to receive a current of air directed from a fan as aforesaid, a catch basin positioned below said absorbent material, means of mounting said device entirely on a fan as aforesaid in manner such as to cause a current of air from said fan to be directed into said air cooling device, and means in said body portion of directing said current of air therefrom upwardly after the same has been caused to absorb moisture evaporated from said absorbent material.

1,965,269. METHOD OF COLORING ALUMINUM. Martin Tosterud, Arnold, Pa., assignor to Aluminum Co. of America, Pittsburgh, Pa., a corporation of Pennsylvania. No Drawing. Application May 1, 1931. Serial No. 534,443. 8 Claims. (Cl. 148—6.)

1. The method of coloring the surface of an aluminum or aluminum-alloy article, comprising forming on the metal surface an adsorbent oxide coating and treating such surface with successive solutions, one containing in solution a metallic compound capable of being converted into oxide by an oxidizing agent in solution, and the other containing an oxidizing agent capable of converting said compound to an oxide, whereby said compound and oxidizing agent are adsorbed by the coating and react to precipitate therein a metallic oxide of characteristic color.

1,965,419. MUFFLER AND PRESSURE UNLOADER. Carl E. L. Lipman, Chicago, Ill., assignor to Lipman Patents Corp., Chicago, Ill., a corporation of Delaware.



1,965,419

Application April 1, 1931. Serial No. 526,811. 2 Claims. (Cl. 230—24.)

1. A motor compressor unit comprising a compressor, a dome enclosing the compressor and providing a hermetically sealed high pressure chamber surrounding the compressor, a passage adapted to establish communication between said chamber and the suction side of said compressor, an unloading valve adapted to close said passage, a muffling valve connected to the delivery passage from the compressor through which the compressed fluid delivered by the compressor is discharged, said muffling valve comprising a cylinder member and a plunger member telescopically associated to be relatively movable under the influence of pressure delivered by said compressor, one of said members being provided with delivery ports through which said pressure is discharged when said members assume a predetermined relative position, said movable member being gravity actuated toward closed position, and a pivoted lever establishing connection between said unloading valve and a movable member of said muffling valve through which said unloading valve is actuated by the muffling valve.

1,965,420. FLUID PRESSURE UNLOADER. Carl E. L. Lipman, Chicago, Ill., assignor to Lipman Patents Corp., Chicago, Ill., a corporation of Delaware. Application April 1, 1931. Serial No. 526,812. 6 Claims. (Cl. 230—22.)

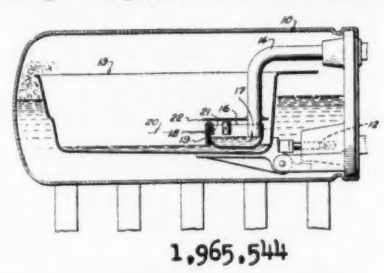
1. A motor compressor unit adapted to be operated intermittently comprising a compressor, a motor for driving the same, and means for unloading the compressor including a by-pass between the high and low pressure sides of the compressor, a valve in said by-pass, a lever and a movable element connected to said lever and disposed in the path of the discharge fluid from said compressor, said lever being operatively connected to said valve to actuate the latter in accordance with the flow of discharge from said compressor when running and operable by gravity to substantially equalize the pressures in the high and low pressure sides of the compressor when the latter is idle.

1,965,461. DEHYDRATOR FOR REFRIGERATORS. Richard E. Gray, Jackson, Tenn., assignor to Piggly Wiggly Corp., Cincinnati, Ohio, a corporation of Delaware. Application Feb. 10, 1933. Serial No. 656,182. 1 Claim. (Cl. 183—4.)

In a refrigerator cabinet having spaced glass plates therein providing a dead air space between them, spaced walls forming a frame for supporting said plates in spaced relation, a tube positioned in said frame parallel to the edges of said plates, said frame having an opening in alignment with said tube, a removable plate for closing said opening, said tube having conduits communicating with the space between said plates at the top and bottom thereof, a removable cap positioned on said tube and a perforated tube having dehydrating material therein insertable through said opening in the frame into said tube, substantially as set forth.

1,965,544. OIL RETURN DEVICE FOR FLOODED EVAPORATORS. Theodore C. Fedders and Franklin G. Slagel, Buffalo, N. Y., assignors to Fedders Mfg. Co., Inc., Buffalo, N. Y. Application Oct. 19, 1932. Serial No. 638,536. 4 Claims. (Cl. 62—126.)

4. In a refrigerating apparatus comprising an evaporator having means for admitting refrigerant and oil admixed

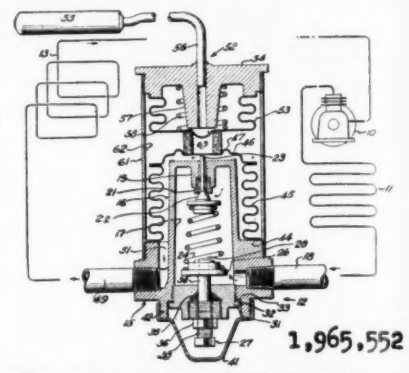


1,965,544

therewith, receiver means comprising an open vessel mounted in the evaporator with its opening above the liquid level therein, said receiver being adapted to receive the products of ebullition for gravitational separation into oil and liquid bodies, an open cup disposed within the receiver adjacent the bottom thereof, liquid transfer means between the receiver and cup for withdrawing oil from the receiver, and an outlet conduit entering said cup to withdraw oil therefrom.

1,965,552. REFRIGERANT CONTROL DEVICE. Joseph D. Lear, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y. Application Nov. 19, 1932. Serial No. 643,416. 6 Claims. (Cl. 236—92.)

1. In a refrigerant control device for direct expansion type refrigeration systems, a member formed with a chambered projection in communication with compressed refrigerant, a bellows enclosing said projection and having its interior in communication with the cooling member of the refrigeration system, a thermostatic control unit responsive to temperatures in said cooling unit and having an expansible portion, means connecting said bellows and said expansible portion whereby said bellows is depressible thereby, and



1,965,552

valve means connected for operation by said bellows for controlling fluid communication between the chamber of the projection and the interior of the bellows.

1,965,553. BEVERAGE COOLER. Joseph D. Lear, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y. Application April 22, 1933. Serial No. 667,369. 5 Claims. (Cl. 257—241.)

1. A heat exchange device comprising a refrigerant tube and a liquid tube each having a rectangular cross-section, said tubes being wound in adjacent relation to form a plurality of super-imposed double thread helices, the direction of winding on alternate helices being reversed whereby the refrigerant tube is wound upon the underlying liquid tube to provide a checker cross-section through the tubes.

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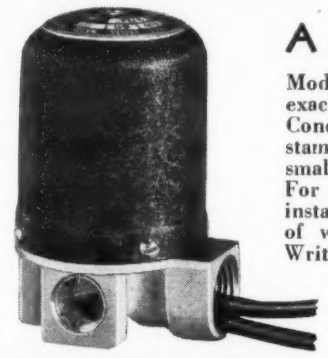

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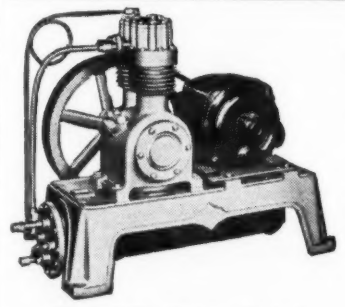

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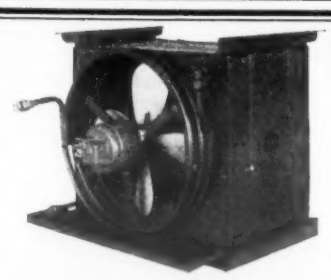

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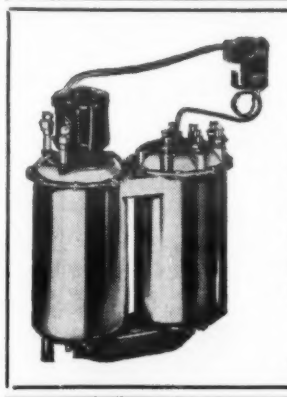

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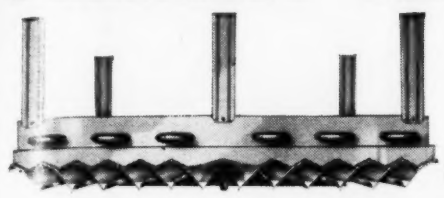

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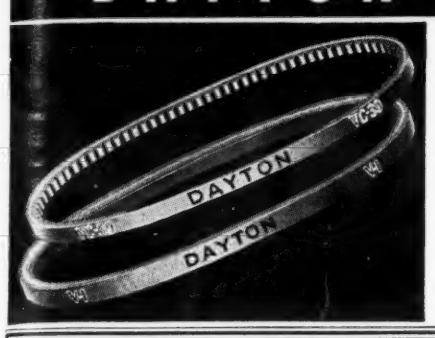

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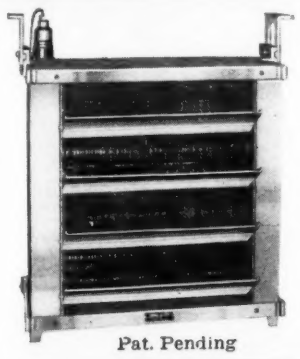

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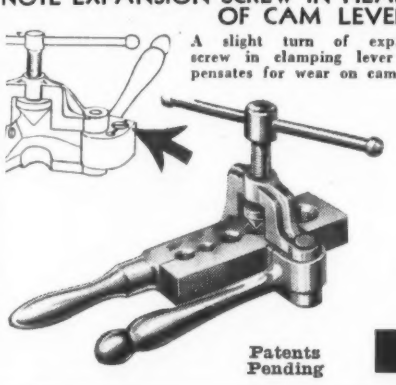
NOTE EXPANSION SCREW IN HEAD OF CAM LEVER

A slight turn of expansion screw in clamping lever compensates for wear on cam face.



Patents Pending

HENRY "DURO"
Flaring Tool

Speedy and rugged. Has carbonized hardened clamping blocks. Adjustable cam lever exerts greatest pressure opposite tube. For ¼, 5/16, ⅜, ½ and ⅝-in. tubing.

HENRY VALVE CO.
Specialized Valves & Fittings for Refrigeration
1001-19 N. Spaulding Ave., Chicago

WRITE FOR BULLETINS DESCRIBING HENRY REFRIGERATION SPECIALTIES

ORDER BLANK

for Electric Refrigeration News and
1934 Refrigeration Directory and Market Data Book

Business News Publishing Co.
5229 Cass Ave., Detroit, Mich. Date.....

☐ Send me the 1934 Refrigeration Directory and Market Data Book.
☐ Enclosed find $3.00.

☐ Enter my subscription to Electric Refrigeration News for one year.
☐ Enclosed find $3.00.

☐ Enclosed find $5.00, combination rate for both the News and the Directory.
☐ I am already a subscriber, extend my present subscription.

Name .....

Attention of In Care of .....

Street Address .....

City and State .....

We sell the ..... refrigerator.

The above rates apply only to United States and Possessions and Pan-American Postal Union Countries. Rate for Canada—Directory, $6.00; News, $6.00; Combination, $11.00. Rate for all other foreign countries—Directory, $5.00; News, $5.00; Combination, $9.00.

7-18-34

QUESTIONS

Directory for Service Men

No. 1738 (Service man, Ohio)—"Can you tell me if you ever published a catalog for refrigerator service men showing where they could buy parts and supplies. If you did, and still do, would you let me know how much it costs?"

Answer: The 1934 REFRIGERATION DIRECTORY lists manufacturers of all refrigeration parts, supplies, materials, and accessories. Price is $3.00 per copy.

Clago Service Problem

No. 1739. (Illinois)—"I am writing you to see what information we can find on a Clago unit (made in Chicago) with 2 cylinders direct-connected to a 1/5-hp. Century motor and in an S-4 Gurney box.

"The machine freezes O.K. but runs almost constantly. Adjusting the control seems to make no difference. Sulphur Dioxide has been added but we think amount was incorrect. If you have any service instructions, diagrams or other information or suggestions please send them to us."

Answer: The Clago refrigerator used a high-side float control. The symptoms you described (continual operation of the compressor with adequate refrigeration) might be caused by a leaky float valve. It might also be caused by the temperature control bulb losing its charge of gas—which would be evidenced by a lack of regulation from your cold control.

If you have the system charged with too much refrigerant, you would probably have a frost back on the suction line. If it has too little refrigerant, the machine would run all the time possibly, but would probably not provide sufficient refrigeration unless it is operating in quite a small cabinet.

We are endeavoring to obtain a Clago service manual for publication, in line with our plan of publishing service information on obsolete makes.

Kerosene Refrigerators

No. 1740. (Dealer, Texas)—"I am interested in a refrigerator operated by kerosene or a small gasoline motor, and want you to give me the names and addresses of some companies who make them. I know about the Waukesha refrigerator and the Electrolux so please do not send me those names."

Answer: Household refrigerators operated by kerosene are manufactured by Gibson Electric Refrigerator Corp., Greenville, Mich., and Perfection Stove Co., 7609 Platt Ave., Cleveland, Ohio. Crosley Radio Corp., Arlington St., Cincinnati, Ohio, makes the Icy-Ball which is also an absorption-type refrigerator.

Air Conditioners

No. 1741. (New Jersey)—"Kindly advise me of the cost of a list of names of air-conditioning apparatus manufacturers and distributors in the eastern states."

Answer: (See below).

No. 1742. (Distributor, Missouri)—"Will you kindly advise us where we can obtain full information on the various types of mechanical room coolers that are now available for distribution.

"We would like full information, particularly as to the list of manufacturers, the type of coolers and the prices to the consumer."

Answer: Manufacturers of electrically-refrigerated room coolers and other types of air-conditioning systems are listed in the 1934 REFRIGERATION DIRECTORY being classified according to the various functions performed by their equipment.

Refrigerator Dishes

No. 1743. (Dealer, Ohio)—"We have been reading every issue of your paper for some time. We have looked from cover to cover, and cannot locate a single firm or manufacturer who handles or makes anything of the vegetable freshener line of glass dish set to be used with electric refrigerators.

"Our General Electric distributor, Bard & Barger of Columbus, have heretofore been supplying us with dishes, but the people from whom they get them, the Hocking Glass Co., are out of production and it is impossible to obtain any at this time. We are also dealers for Crosley Shelvador, and have promised several sets of dishes and vegetable fresheners with sales. People are waiting for these and we are unable to get them.

"Would you please supply us with the names and addresses of several manufacturers where we might be able to get something of the sort? Or, if you think it advisable for us to purchase a copy of the REFRIGERATION DIRECTORY, please send us a copy c.o.d."

Answer: See page 278 of the DIRECTORY for manufacturers of vegetable fresheners, refrigerator dishes and other refrigerator accessories.

Rubber Ice Cube Trays

No. 1744. (New York)—"Will you kindly give us the names and addresses of three or four manufacturers of rubber ice trays?"

Answer: See advertisement of Inland Mfg. Co. in this issue.

Household Refrigerators

No. 1745. (Exporters and Importers, New York)—"We have a client in Turkey who is interested in buying electric refrigerators in the United States. Kindly furnish us with a list of manufacturers of this commodity."

Answer: See page 262 of the 1934 REFRIGERATION DIRECTORY for manufacturers of household electric refrigerators. Manufacturers of commercial systems are listed starting on page 252.

Freezit Refrigerator

No. 1746 (Dealer and Service man, New York)—"Can you advise me as to who is the manufacturer of the Freezit electric refrigerator?"

Sealer Gland Packings

No. 1747. (Exporter, New York)—"We are seeking a source of supply for Sealer Gland Packings as used in connection with a refrigerator compressor. They are fitted to the Cooke sealer and a set of two is used. We want to obtain the price on 1,000 only. This inquiry is from our principals in Melbourne, Australia."

Answer: Write to Rotary Seal Co., 809 W. Madison St., Chicago, Ill. This company is manufacturer of the Cooke seal.

Eutectic Solution

No. 1748. (Exporter, Indiana)—"Do you know of any manufacturers of congealing solutions, something on the order of Kold-Hold of Lansing?

Answer: Try Waltham Systems, Inc., 277 Military Rd., Buffalo, N. Y.

'Wagner' Compressor

No. 1749 (Michigan)—"Have you any information concerning Wagner refrigeration compressor, the address of the manufacturer or any other information about Wagner refrigerators?"

Answer: You may have examined the nameplate on the motor rather than the make of compressor. Wagner Electric Co. of St. Louis has manufactured thousands of motors for use in various makes of electric refrigerators.

Also, it may be that you refer to the Wayne electric refrigerator which was built by the Wayne Home Equipment Co., Fort Wayne, Ind., up until about two years ago. Complete directions for servicing the Wayne were published in the July 11 issue of ELECTRIC REFRIGERATION NEWS.

Service Manual

No. 1750 (Service man, New York)—"I am not a regular subscriber to your ELECTRIC REFRIGERATION NEWS, but never miss reading it weekly at the Buffalo Public Library. It is one of the most interesting publications I know of. Our library here has a number of good books on refrigeration, but none on servicing or repairs and I would appreciate learning the title, author, publisher, and cost of a book for a refrigerator service man. I am going to ask the library to purchase it."

Answer: See below.

No. 1751 (Dealer, Missouri)—"We are interested in a service manual for electric refrigeration. If you publish one, please send us a copy c.o.d. If you do not would you inform us who does?"

Answer: For service instructions on various makes of refrigerators, we refer you to the series of articles now being published in ELECTRIC REFRIGERATION NEWS.

The following 'orphan' makes, for instance, have already been treated: Absopure household—March 25, 1931; Majestic—Aug. 16, 1933; Allison—May 30 and June 6, 1934; Welsbach—June 13, 20, and 27, 1934; Rice—July 4, 1934; and Wayne—July 11, 1934.

Units for Freezers

No. 1752 (Manufacturer, New Jersey)—"We anticipate using a quantity of 1 and 1½-hp. compressors in connection with our direct expansion ice cream freezers.

"It has occurred to us that you could give us the names of manufacturers of these units so we may arrange to obtain prices and literature on their product."

Answer: Manufacturers of commercial refrigeration compressors are listed on page 177 of the 1934 REFRIGERATION DIRECTORY.

Refrigerator Manufacturers

No. 1753 (Distributor, New York)—"We would greatly appreciate your sending us a list of all domestic refrigeration manufacturers in the United States, giving us their names and addresses. We want this as we have organized an export department and have had a number of inquiries from all over the world for refrigeration, and we are anxious to tie up with some good manufacturer.

"We are also interested in buying the complete freezing apparatus without the box and would appreciate your giving us the names and addresses of manufacturers specializing on these units.

"If you should have a list of manufacturers of boxes alone without the units, we would also appreciate a list of these manufacturers."

Answer: See page 262 of the 1934 REFRIGERATION DIRECTORY for names and addresses of manufacturers of self-contained household electric refrigerators. Concerns making household refrigeration systems, not including cabinets, are listed on page 274, and manufacturers of cabinets are shown on page 287.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.
each. Three insertions $5.00, additional words ten cents each.
RATES: Fifty words or less, one insertion $2.00, additional words four cents

POSITIONS AVAILABLE

REFRIGERATOR SALESMEN wanted throughout the United States to sell repossessed and rebuilt electric refrigerators for one of the largest wholesale jobbers in America. Territories and repeat commissions granted to those who qualify. Substantial earnings possible. Box 628.

WANTED, Refrigeration service engineer in a new department specializing in electric refrigeration service supplies, by a concern well established on other lines in northern Ohio. Must be familiar with refrigeration installation and service problems, with sales ability. Cleveland resident preferred. Box 631.

INDEPENDENT SERVICE COMPANIES

GUARANTEED thermostat repair service, B and B, G. E., Cutler-Hammer, Penn, Ranco, Tag., etc. Regrind and polish float valve needles ten cents per needle, $1.00 minimum charge. Expansion valves repaired. Gas service, Methyl, Ethyl, Sulphur, Iso-butane and others. Any amount, your cylinder or ours. Competitive prices. Halectric Laboratory, 1793 Lakeview Road, Cleveland, Ohio.

INCOMPETENT SERVICE MEN EXPENSIVE TO EMPLOYERS

A manufacturer of electric refrigerators said recently that "there are too many men who CLAIM to be refrigeration engineers, but really know little about the subject." Their inefficient workmanship results in disgruntled customers, lost sales and reduced profits.

It is utmost in importance, therefore, that service and installation work be entrusted only with men who are FULLY and PROPERLY trained and who can do the kind of work that satisfies customers and builds business for employers.

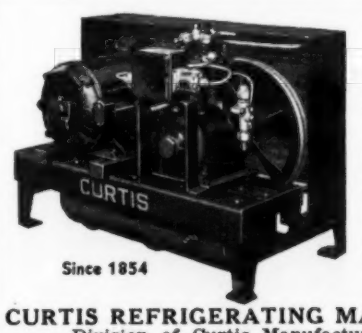
Men trained by the UTILITIES ENGINEERING INSTITUTE are thoroughly familiarized with all types of refrigerators, and have a complete practical and theoretical knowledge of electric refrigeration. They are carefully drilled in diagnosing trouble correctly and in repairing it efficiently.

That is why sales and service organizations that employ UEI men are so highly satisfied with their workmanship.

When in need of a service and installation man on whom you can depend fully, write or wire to

UTILITIES ENGINEERING INSTITUTE
404 N. Wells St., Dept. 474, Chicago, Ill.

CURTIS REFRIGERATION



Since 1854

Quiet, Compact, Slow Speed Condensing Units. Complete range of sizes for commercial and domestic applications. 1/6 h.p. to 5 h.p. Distributor Franchises still available.

NRA CODE

Write to

CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 Kienlen Avenue, St. Louis, U.S.A. 518 H. Hudson Terminal, New York City.